Volume 5, Number 2 $3.50 October 1987

TEACHING and computers

Math Meets Geography In Gold Rush Spreadsheets

Electronic Lesson Plans: Language Arts, Science, Library Skills, & More!

NEW! The Well-Managed Classroom

SCHOLASTIC

Finally. Mac-like desktop publishing that puts it all together.

Page Mode. Text Mode. Graphics Mode.

Page layout. Word processing. Graphics creation. And you.

Welcome to Springboard Publisher.™

Springboard Publisher is the breakthrough in desktop publishing that Apple II® and IBM® PC owners have been waiting for.

It is the first Mac-like desktop publisher to combine powerful page layout, word processing, and graphics creation together in a single program.

There's nothing else like it.

Desktop publishing everyone can use every day.

Mac-like interface for Apple II.

Microsoft Windows interface for IBM PC.

One integrated program instead of three separate programs.

Many desktop publishers make you juggle three different programs every time you want to create a page.

But with Springboard Publisher, everything you need is tied together into a seamless, integrated environment, so you can move between the page, text, and graphics modes without ever having to juggle programs or leave your page. What could be more natural?

You'll be publishing in minutes, not days.

Springboard Publisher puts its power at your fingertips. Mac-like pull down menus give you instant access to all features with the touch of a key or the click of a mouse.

To add, edit, or rearrange text or graphics anywhere on your page, you just move your cursor to that area, click, and you're there. Automatically switched to the page, text, or graphics mode, so you're ready to work.

It's really that simple.

Never leave your page.

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Import professionally drawn art from popular graphics programs.

Customize character and line spacing.

Draw right on your page with a powerful, Mac-like paint program.

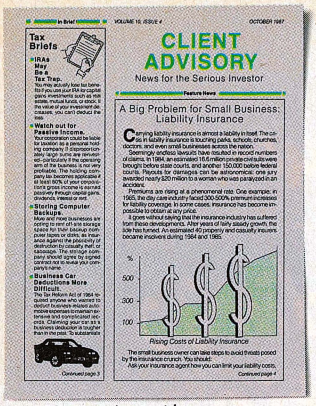
Write and edit with full featured, built-in word processor, or import text from popular word processing programs.

Overlap text or graphics anywhere; resize, reshape, or reposition them anytime.

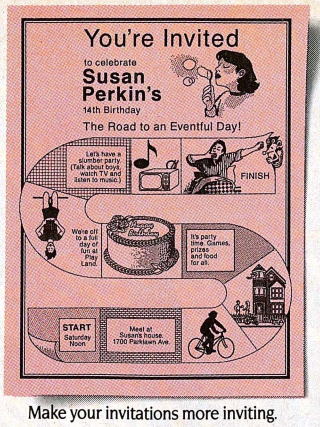
Intuitive Text™ automatically rewraps around graphics whenever you change your layout.

Select up to nine individually sized columns; customize gutter width.

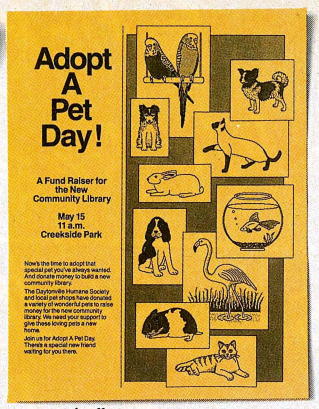
Add text to graphics—even diagonally.



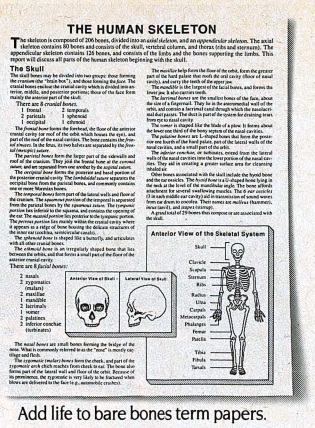
Communicate with customers.



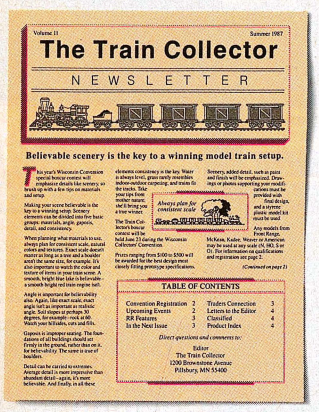
Make your invitations more inviting.



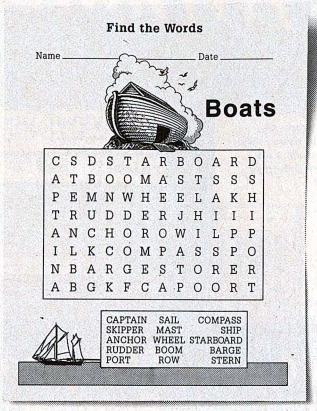
Kick off a community campaign.



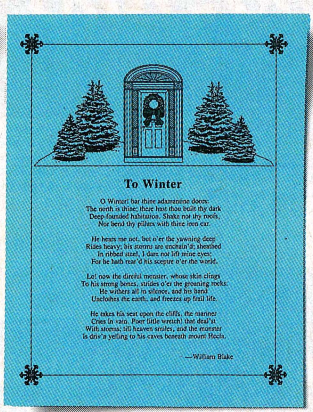
Add life to bare bones term papers.



Keep your club on the right track.



Create worksheets that really work.



Express yourself poetically.

Get down to business.

You can size your columns individually, then add inset text and graphics frames anywhere on your page—even overlapping each other and straddling columns.

You can enter and edit text with the integrated, full featured word processor. Or you can import text from popular word processing programs.

Either way, you're free to mix type fonts, styles, and sizes (9 to 72 pt.) in any combination, and change them at any time.

You can also draw right on your page, choosing from a richer palette of automatic drawing tools and special effects than most paint programs offer.

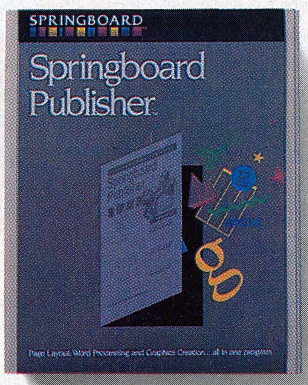
Or you can import pre-drawn art from Springboard's Works of Art™ series and Clip Art Collections,™ or other popular graphics programs.

Change your mind, experiment with ideas.

Springboard Publisher gives you the freedom to put whatever you want, wherever you want, whenever you want.

You can resize individual columns at any time. And when you resize, reshape, or reposition your inset text and graphics frames, Springboard Publisher's Intuitive Text™ automatically reformats itself around them, even in multi-page documents.

Springboard Publisher makes changing your page almost as easy as changing your mind. So, for the first time, you're really free to experiment with ideas.



The only three-in-one program.

Laser power and more!

Springboard Publisher supports quality printing on dot matrix printers, including 24 pin printers. Add the *Springboard Publisher™ Laser Driver* and you get Adobe PostScript™ support for near typeset quality output.

Need ideas? Add *Springboard Publisher™ Style Sheets-Newsletters*, and get dozens of professionally designed newsletter page layouts to which you can easily add your own text and graphics.

No time to draw? Add *Works of Art,™* a new family of art packages designed to work with Springboard Publisher.

Choose the Assortment, Education, or Holiday Series. Each volume contains over 500 works of art.

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Start putting it all together today. Call 1-800-992-2619, ext. 351 for a FREE Springboard Publisher brochure. Or see your Springboard dealer for details.

SPRINGBOARD™

Springboard Software, Inc.,
7808 Creekridge Circle,
Minneapolis, MN 55435

Suggested Retail Prices:	Apple II
Springboard Publisher™	$139.95
Springboard Publisher™ Laser Driver	$39.95
Springboard Publisher™ Style Sheets	$29.95
Works of Art™	$39.95 ea.

IBM pricing to be announced.

In Canada call 612-944-3915

Requirements: Apple IIe, IIc, IIGS: 128K. IBM-compatibles: 512K, MS-DOS 2.1 or newer. Microsoft Windows. 5¼" or 3½" disks available for both.

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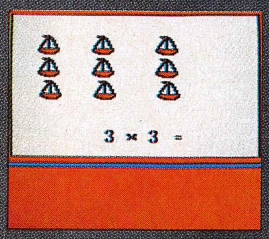
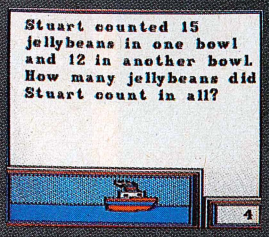
Stickybear + Weekly Reader Software = Basic Skills in Reading, 'Riting, and 'Rithmetic



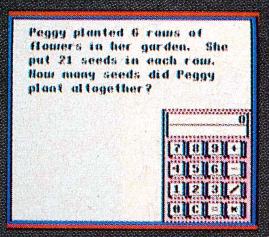
Stickybear® Math 1 and 2

Turn practice in the 4 basic math functions into adventure! Every time kids get a set of problems right, they help Stickybear out of a jam. Perfect for home and school use: over 20 difficulty levels to challenge users, plus record storage to track progress of all students in class. Ages 6-9 (Math 1) Ages 7-up (Math 2)



Stickybear® Word Problems

Make sharpening basic math skills fun! Hundreds of problems stored on disk. Plus, teachers/parents can add problems, adjust difficulty level to challenge users' abilities. Colorful graphics reward each correct answer! Ages 7-up.

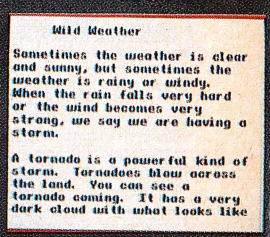


Math Word Problems

Parents/teachers can select word problems in addition, subtraction, multiplication, and division...and adjust program to match student progress. Use word problems stored on disk or create your own. Program highlights incorrect procedures and displays correct operations in order. Ages 8-up.

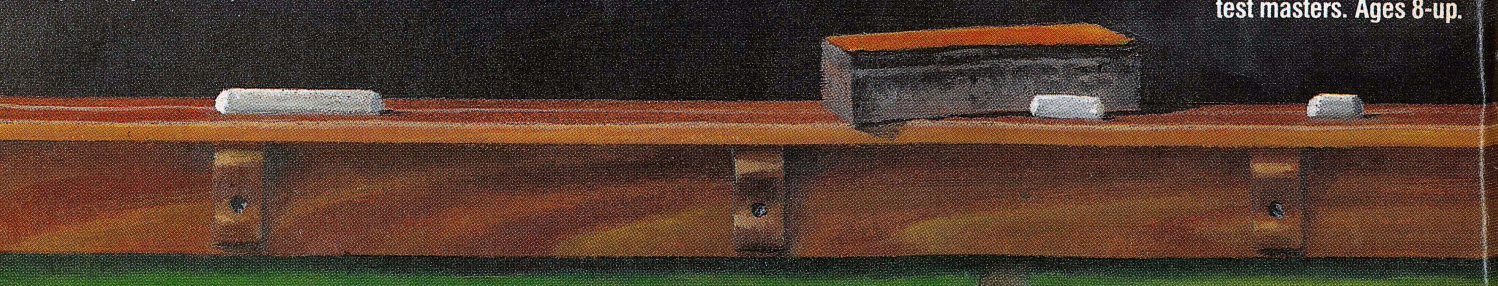
Stickybear® Reading

Build vocabulary and reading comprehension skills with hundreds of word/picture sets and put-together sentence parts. Users build skills putting together thousands of their own sentences as they learn all about subjects, verbs, and objects. Ages 5-8.



Stickybear® Reading Comprehension

Improve reading comprehension with multi-level reading program. 30 high-interest stories with follow-up comprehension questions stored on disk. Or create unlimited practice with develop-your-own stories and questions. Print-out feature for kids' reports or teacher test masters. Ages 8-up.



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Weekly Reader Family Software

Stickybear is a registered trademark of Optimum Resource, Inc.

Look for our software in finer computer stores everywhere.

TEACHING and computers™

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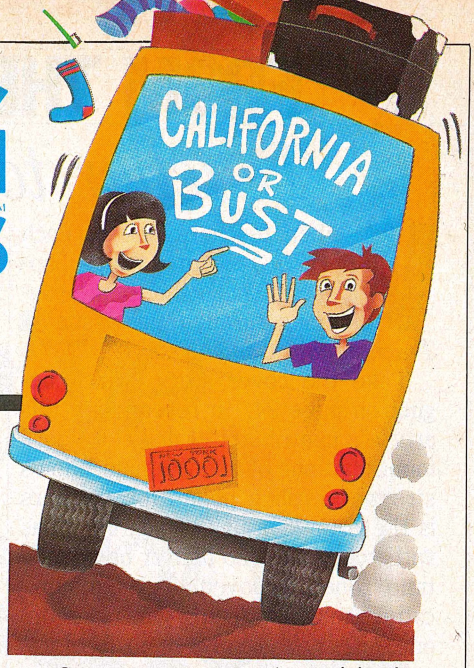
October 1987 Vol.5, Issue 2



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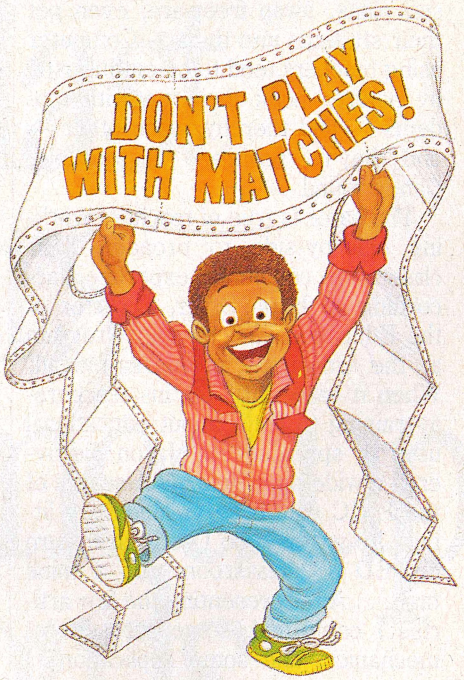
Teacher's Notes and three reproducible worksheets that relate to the poster.



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TEACHING AND COMPUTERS® (ISSN 0738-6087) is published six times during the year; monthly October and January, bimonthly August/September, November/December, February/March and April/May by Scholastic Inc., 730 Broadway, New York, NY 10003-9538 for $23.95 per year, $12.95 for five or more subscriptions to the same address. Single copy, $3.50. (For Canadian pricing, write our Canadian office, address below.) Second-class postage paid at Monroe, OH 45050-2700. POSTMASTERS: Send notice of address changes to Office of Publication, TEACHING AND COMPUTERS®, 351 Garver Rd., Box 2700, Monroe, OH 45050-9998. Address subscription correspondence to TEACHING AND COMPUTERS®, P.O. Box 2040, Mahopac, NY 10541. Canadian address: Scholastic-TAB Publications, Ltd., Richmond Hill, Ontario L4C 3G5; in the United Kingdom: Scholastic Publications, Ltd., Westfield Rd., Southam, Leamington Spa, Warwickshire, England DV330JH; in Australia: Ashton Scholastic Pty., Ltd., P.O. Box 579, Gosford, N.S.W. 2250, Australia; and in New Zealand: Ashton Scholastic Ltd., 7-11 Fairfax Ave., Penrose, Auckland 6, New Zealand. Available on microfilm through Xerox University Microfilms, Inc., 300 N. Zeeb Rd., Ann Arbor, MI 48106. Also available on microfiche through Bell & Howell Micro Photo Division, Old Mansfield Rd., Wooster, OH 44691. Printed in U.S.A. Copyright © 1987 by Scholastic Inc. All Rights Reserved. Member, Audit Bureau of Circulations. Permission is granted to make machine copies of material in this issue for classroom use only. **Permission to reproduce material in this issue, in whole or part, in any form or format, for all other uses, must be requested from the publisher.**

FROM THE EDITOR

Teacher to Teacher

When teachers talk to each other, exciting things happen. That's the theme running through this issue of *Teaching and Computers*.

Take the cover story, which begins on page 24. In researching this article, contributor Candy Colborn found that one of telecommunication's strongest selling points for teachers is the ease it brings to sharing ideas with colleagues, no matter how many time zones removed. Telecommunicating teachers can "talk" one-on-one, in small groups, or in freeform conferences. They can compare lesson plans, swap freeware, even get their students into the act. Computer using teachers tend to be enthusiastic by nature; hook them up with modems — and thereby, each other — and they're positively unstoppable, Candy found.

The same is true of teachers working side-by-side to broaden their classroom computer expertise, according to Jason Ohler, Director of the Educational Technology Program at the University of Alaska-Juneau. When it came time for his teachers-in-training to learn about educational uses of spreadsheets, Jason discovered a wide-open field. "A search of the ERIC data base yielded very little," he writes. "So I decided to turn my ED 432 classroom into a think tank. . .After presenting the few articles I could find, some spreadsheet mechanics, and some applications I had developed, I turned the students loose. . .The result was twelve unique, useful ways to use the spreadsheet in a variety of classroom and administrative situations." The "California or Bust" spreadsheet feature in this issue (page 48) was adapted from the compilation Jason's class produced.

What Jason and Candy are both saying about teachers confirms what we at *Teaching and Computers* have always believed: that one of the most useful roles we play is as a conduit for the exchange of ideas, from teacher to teacher.

Our newest columnist is in keeping with that philosophy. Susan C. Jacoby has worked for many years as an education consultant specializing in computers. Her motto: "A teacher's frustration is Susan's inspiration." In "The Well-Managed Classroom," Susan will offer her computer solutions to the many administrative tasks every teacher faces. And she wants *your* solutions as well; she plans to pass along the best of them to other teachers through a special column later this year. See page 23 for details.

But don't write just to Susan. *All* of us at T&C are eager to hear about your ideas and experiences. . .as are the 45,000 other computer using teachers on our subscriber rolls. So help us keep up the excitement: Keep in touch!

M. Revenaugh

Associate editors Kris Meyer and Jackie Glasthal talk telecommunications.

TEACHING and computers

PUBLISHED BY SCHOLASTIC INC.

Maurice R. Robinson,
Founder of Scholastic Inc., 1895-1982

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ABC

What we've learned in school over the last ten years can be summed up in five words.

The Apple Unifie

After a decade of perfect attendance, we couldn't help but learn a very important lesson.

No two school systems are the same.

And no two have the same computing needs.

So to meet the requirements of diverse teaching, administrative and student bodies, we developed a system.

The Apple® Unified School System.

It's an impressive array of products and services from which any school, big or small, can select comprehensive solutions for their particular computing needs.

The Apple IIe and Apple IIGS form a great team for any school.

We've learned our lesson in lesson plans, and matched course needs with available courseware in the Apple Curriculum Software Guides.

Whether it's labs for special education, help with curriculum planning, or a new approach to old administrative chores.

The best way to do all this, we've learned, is to have something for every body.

For students in K-8, there's the Apple IIe. With the world's largest library of educational software, it's at the head of the class.

For high school students, there's the Macintosh™ Plus. It's a great study aid for college prep courses, runs the most advanced business software around,

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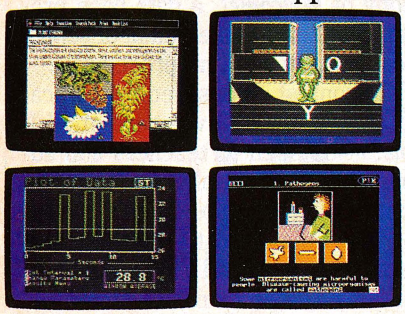
d School System.

and is the computer of choice at leading universities.

And there's the Apple IIGS.™ It can run virtually all existing Apple II programs. And has an incredible ability to show and tell.



Each Apple Learning Series offers software that easily integrates the computer into the classroom.

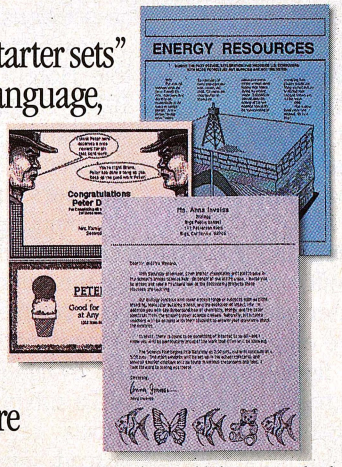
Show with superior graphics and a palette of over 4,000 colors. Tell with a synthesizer that can simulate anything from a French teacher to a French horn.

The IIGS is also an invaluable teacher's aide. As a powerful workstation, it excels in managing everyday classroom tasks, like writing reports, attending to attendance, and making the grades.

What's more, we've made it easy to integrate the Apple II family into the classroom with the Apple Learning Series.

These software "starter sets" are available for Early Language, Life Science and Health Education, with many more to come.

We've even done our homework so teachers and curriculum coordinators can easily choose software that meets their needs.

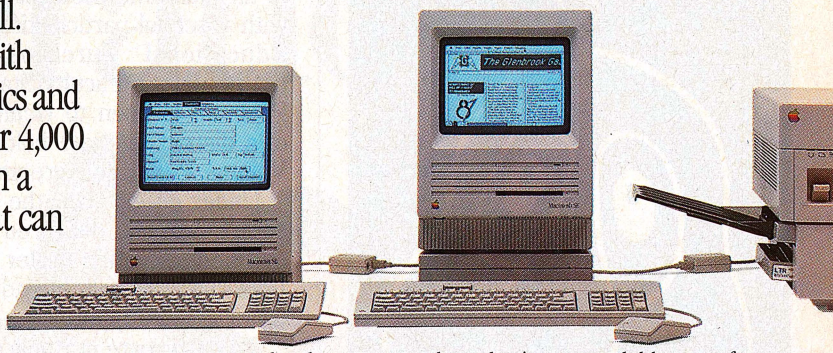


With desktop publishing, any school paper can look first class.

The result is the Apple Curriculum Software Guides. These indispensable manuals can help you select the best rated software for math, science, reading, writing and language skills. In other words, most of the subjects you teach.

Naturally, not all of our ten years were spent in the classroom. We've spent our fair share of time in the principal's office, too.

Which brings us to administrators and the Macintosh SE. The computer powerful enough to run an entire school district. With point-and-click technology, anyone can learn to use the SE without costly training. So anyone can take care of anything from tracking attendance to preparing budgets.



Put a Macintosh and LaserWriter together and you've just expanded the power of the administration.

Add a LaserWriter® Printer and you've got a desktop publishing system. And with it, the power to produce more persuasive presentations, more interesting newsletters, even graphic proposals for additional Apple computers.

Of course as good as all of the above products are, they don't work by themselves. That's why our school system has a support system.

For instance, in the last three years we helped train more than 15,000 teachers and administrators to make better use of their computers.

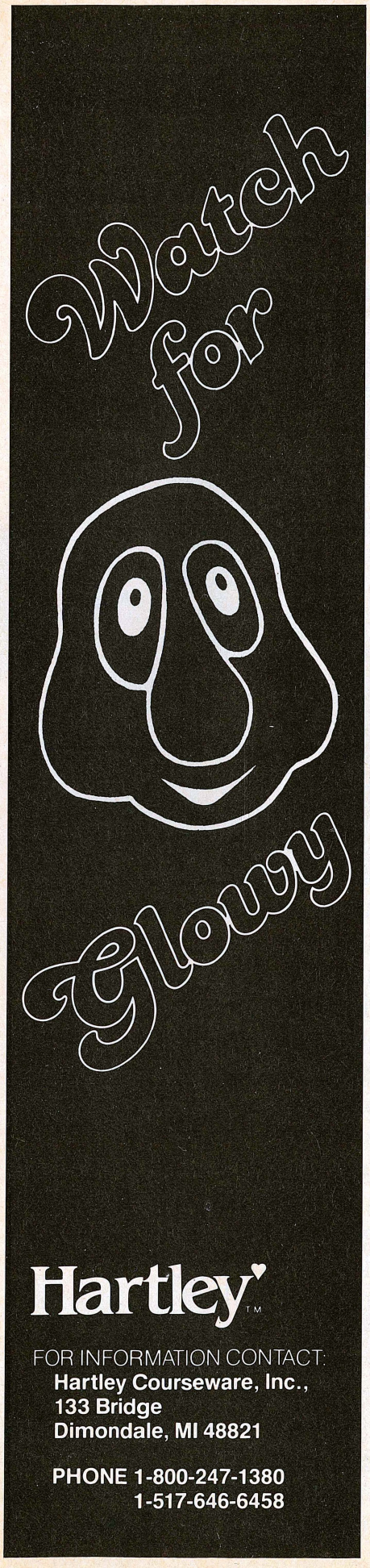
And to help educators be as productive in their living rooms as in their classrooms, we developed the Educator Buy Program: a special discount on the most popular Apple products in school.

We've even made it easy to learn how our school system can work for yours. Just call 800-538-9696, extension 480, for more information.

The Apple Unified School System.

You'll find it's the most comprehensive computing program ever developed for education.

And, thanks to you, we're learning new ways to expand it every day. The power to be your best.™



UPDATE

NEWS FOR COMPUTER-USING TEACHERS

APPLE AND IBM ANNOUNCE PURCHASE PROGRAMS FOR EDUCATORS

Apple Computer, Inc. and IBM Educational Systems have both announced programs that enable teachers and administrators to buy computers for their homes at prices usually reserved for educational institutions.

Apple's purchase program is open to any full-time professional affiliated with a school participating in Apple's Educational Purchase Program (EPP). IBM's Faculty/Staff Purchase Program is open to faculty and staff of a district or state holding an IBM Volume Purchase Agreement (VPA).

Under either plan, the home computers will be delivered to a local certified education dealer (Apple's or IBM's), who will provide post-sale training and support.

To participate in Apple's Computer Purchase Program, contact an authorized Apple education dealer, education sales representative, or your school district. To find out more about IBM's Faculty/Staff Purchase Program, contact your local IBM representative.

MORE SCHOOLS USING SITE LICENSES

A majority of school districts and colleges (64 percent of those surveyed) own at least one "site license," permitting duplication of unprotected software.

The Interactive Education Foundation (IEF), a non-profit organization that promotes computer use and other forms of interactive education, recently released that finding. It also reported that 82 percent of those surveyed believe all educational software should be site licensed. In the study, 500 responses from a mail survey of 3,000 of the nation's 20,000 school districts and colleges were examined.

IEF provides a free list of tips for educators looking to purchase a site licensing agreement. For a copy of these suggestions, send a self-addressed stamped envelope to Interactive Education Foundation, Flowerfield #7, St. James, NY 11780.

"COMPUTER SOLUTIONS IN EDUCATION" CONTEST

If you can explain, in 500 words or less, how you've used computers to solve organizational problems within your school system, you may win an Apple IIc computer, a IIc modem, or a copy of *Welcome!*, a data base program that helps make sense of school rules, regulations, and procedures.

The contest, sponsored by Abracadata, Ltd. — the developers of *Welcome!* — is open to teachers and administrators in public and private school systems in the United States. Entries must be typed, double-spaced, on 8½" x 11" paper, postmarked no later than December 31, 1987.

For more information, or to enter the contest, write Abracadata, Ltd., "Computer Solutions in Education Contest," P.O. Box 2440, Eugene, OR 97402; 503/342-3030.

CALL FOR NECC CONFERENCE PAPERS

The ninth National Educational Computing Conference (NECC '88), a cooperative effort of thirteen educational, scientific, and professional associations, is to be hosted by North Texas State University, at the Anatole Hotel, Dallas, TX, June 15-17, 1988. Original papers and names of suggested speakers are now being solicited.

Papers may detail a particular use of computers in education, or describe the consequences of such use on the educational process; may report concrete results, or be a field survey with appropriate synthesis and evaluation.

To submit a paper, send four typed copies of the manuscript (double-spaced, maximum 15 pages) and a one-page abstract. To submit a project presentation report — limited to 15 minutes in length, and allowing for audience interaction — submit three copies of a one-page proposal.

Proposals and names of suggested speakers should be sent by November 1, 1987, to: NECC '88, International Council for Computers in Education, University of Oregon, 1787 Agate St., Eugene, OR 97403. ■

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Introducing the IBM Personal System/2 Model 25: An intelligent response to classroom needs.

The newest member of the IBM Personal System/2™ family was made for a very special desktop: the one in the classroom.

The Model 25 brings our newest technological advancements to students at every grade level. It packs the power and graphics of the IBM Personal System/2 family into a single, space-saving unit that fits on a student's desk. It has a full-function, easy-to-understand keyboard as well as advanced graphics and animation that are as colorful as a student's imagination.

There are features that teachers will appreciate, too. The Model 25 is designed for simple setup and there's instructional software that makes getting started easier.

When you buy a Model 25 you have access to more than just a computer. A full library of courseware, networking capabilities and, of course, IBM support, are available.

It adds up to a computer that helps students learn and teachers teach.

next generation.

A little education on IBM courseware.

The IBM education software was designed and developed by educators. It was then tested by a demanding group of critics: teachers and students, who gave it high marks.

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IBM's courseware is now available on 3½" diskettes. This smaller size actually holds larger amounts of information than larger-sized diskettes. Also, these diskettes are covered with a hard plastic sleeve that helps protect the valuable courseware inside.

IBM networking: Students can get your attention.

Through an IBM classroom network the teacher's computer can be linked to each student's. This connection has many classroom benefits.

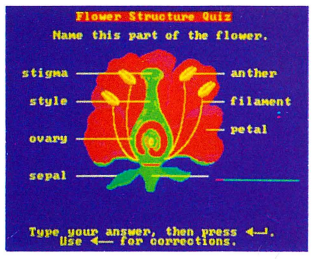
Our network allows the teacher to give each student specific instructions, as well as distribute the day's courseware and lessons electronically. Also, the teacher can tell which program a student is working on, as well as how fast they're working. The more a teacher knows, the easier it is to evaluate a student's progress.

With the help of the IBM network, students can get right to work on the right subjects, and advance at their own pace.

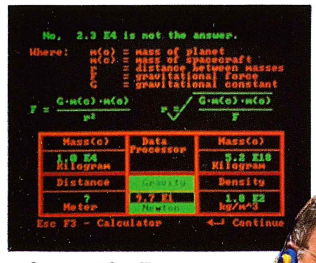
IBM networking also has benefits that go beyond the classroom. Teachers can be linked to the administration office, which makes daily chores, like taking attendance, effortless.

The end result

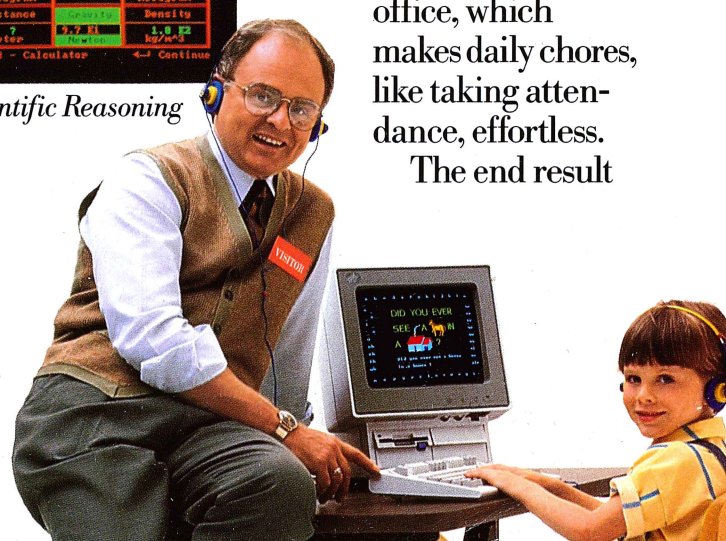
Primary Editor



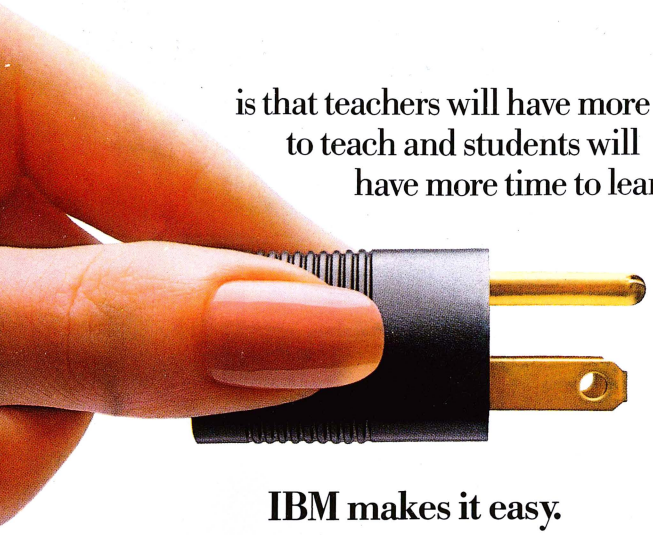
Earth Sciences



Scientific Reasoning



is that teachers will have more time to teach and students will have more time to learn.



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And to make sure your Model 25 stays where you put it, each one is designed to be easily secured to any desk or tabletop.

The subject: Support.

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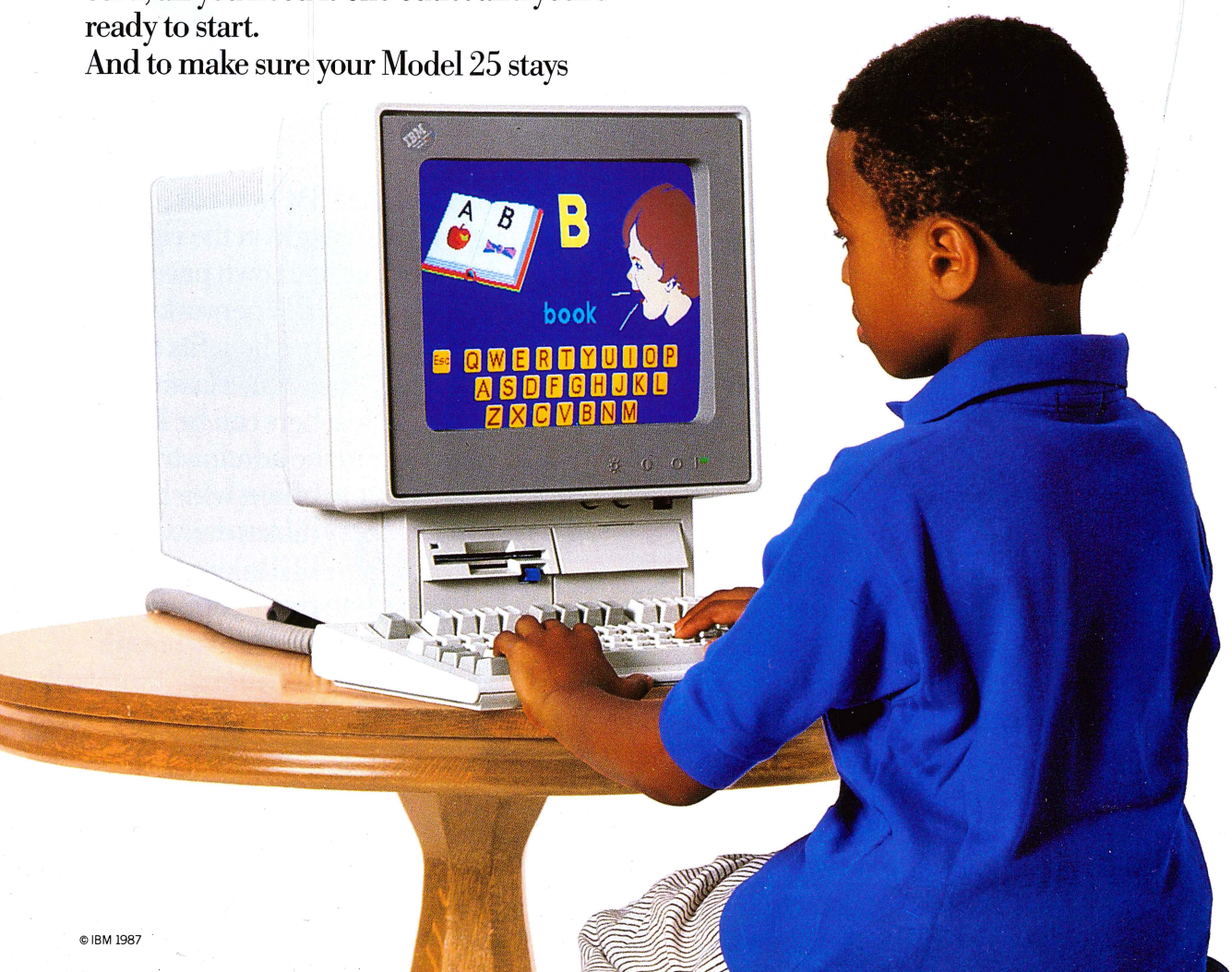

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Would You Have Signed... the Constitution?

...itors to the National Archives in Washington ...C. have an extraordinary opportunity to do ...ot more than merely look at the original U.S. ...nstitution.

...ese visitors will find an Apple IIGS computer ...ning an interactive software program ...eloped by Scholastic Inc. titled "Would You ...ve Signed the Constitution?"

...just three minutes, participants will be able ...ct as delegates to the Constitutional Con...tion by answering five questions—ques...ns that were debated in Philadelphia 200 ...rs ago, and that are still relevant today.

...er the final question, participants decide ...ether they would have signed the Constitu...n and then, using the Apple IIGS mouse, ...y can sign a replica of the Preamble.

Apple Computer and Scholastic Inc. are proud to honor the 200th birthday of the U.S. Constitution with this exhibit.

For a more in-depth study of the Constitution, teachers may turn to Scholastic's "The Constitution—Then and Now" data base for Appleworks, a new program that has the potential to make the Constitution a living presence in your classroom.

For information about Apple products, call 1-800-538-9696; ask for extension 480 for the Apple dealer nearest you.

For more information about Scholastic's Appleworks Data Base... or about the National Archives exhibit, write to:

Apple/Scholastic's Bicentennial Constitution Celebration,
P.O. Box 7502, 2931 East McCarty Street, Jefferson City, MO 65102

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CLASSROOM HAPPENINGS

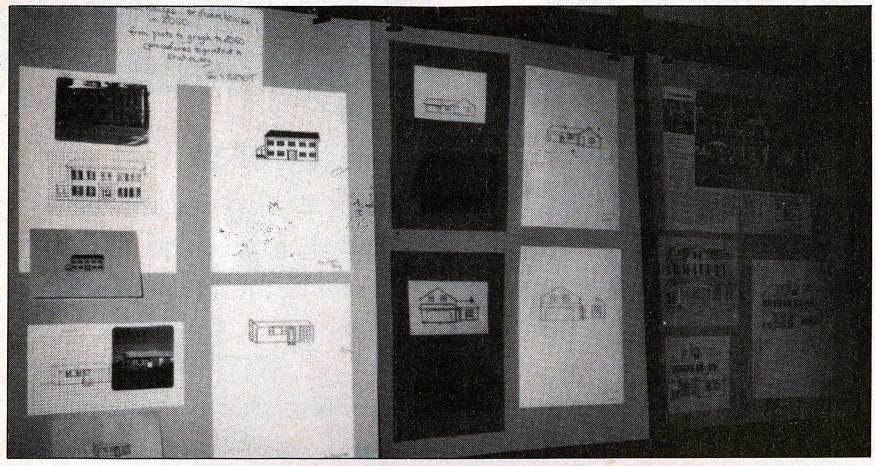
WHAT'S HAPPENING IN COMPUTER CLASSROOMS

BY JACKIE GLASTHAL

LOGO ARCHITECTURE

How many windows face the front of your house? How many doors? Is the front door in the center of the structure, or is it off to one side? Is there a porch? A garage? Shrubbery? What color is the house? What style of architecture was it built in?

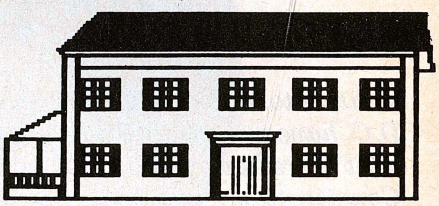
No matter how long you've lived somewhere, fourth graders at Pratt Elementary School in Barker, New York will tell you, you don't *really* know your home until you've studied its architecture. And you haven't studied its architecture, they might add, until you've programmed your abode in Logo!



Kids at Pratt Elementary School in Barker, New York, display "Logo-fied" versions of their homes: more than squares with triangles on top!

That's exactly what Mary Ann Costello's fourth graders did this past school year as part of a unit on architecture. As "expert" programmers with three years of experience under their belts, Mary Ann's students were ready for the challenge. She had each child bring in a photograph of his or her home, and then had the kids trace their photos onto tracing paper. Next they transferred these images onto graph paper, making their programming work easier when it came to estimating angles and line lengths.

The kids' toughest and most rewarding task, says Mary Ann, was figuring out what subprocedures would be needed to draw their homes, and in what sequence to call up those procedures. Miscalculations abounded, and adjustments in the Logo programs were ongoing.



Logo architecture in detail.

But the final results were so impressive (see above) that Mary Ann's students used their Logo architecture programs, colored printer paper, and envelopes to create handmade stationery of their own homes. Many of the kids then presented the stationery to their parents, who were as impressed with the artwork as the students themselves.

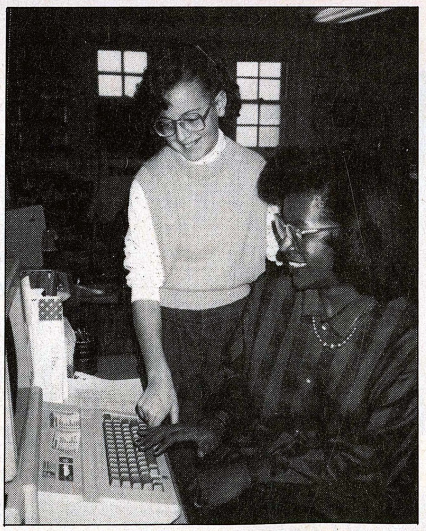
WHO'S TEACHING WHOM?

For sixth graders at the Glenridge School in Clayton, Missouri, filling out a job application is the first step to — role reversal! In a special program established by computer coordinator Jacquely Lipsitz, the children apply for positions as volunteer computer tutors to teachers at their school.

Teaching their teachers involves a lot of responsibility, the Glenridge tutors have learned. Tutors must familiarize themselves with the software programs that their "teacher-students" wish to learn. The tutors must set and keep their tutoring appointments, and then make up any regular classwork they miss as a result.

Filling out a "job application," Jacquely found, helps the students to recognize the responsibilities that they are taking on. In addition to an essay explaining why he or she feels qualified to be a tutor, each child is also asked to obtain written permission for the job from his or her classroom teacher, and a parent or guardian.

Hiring a computer tutor has become the "in" thing to do at Glenridge, says Jacquely. Not only are classroom teachers requesting tutors, but so is the gym teacher, the school's reading specialist — and even the principal!



A sixth grader at the Glenridge School in Clayton, Missouri, helps a teacher learn to operate one of the school's many computer programs.

These teacher-students don't hesitate to put their new skills to work, either. When their computer tutoring is complete, they often use Springboard's *Certificate Maker* (which their tutors have taught them to use) to create certificates of appreciation for their "employees."

"DRAWING" THEM INTO PROGRAMMING

When Linda J. Peters, computer specialist at the Louisa May Alcott School in Chicago, Illinois, decided to introduce her seventh and eighth graders to BASIC programming, she was sure that they would jump at the

prospect. She was unprepared for — and at first disappointed by — the response she received.

"The kids had been spoiled by commercial software programs," Linda remembers. "With no immediate loud noises or colorful graphics, the kids lost interest. All they wanted to know was when they would go back to using the 'fun' kinds of software that they had been used to."

Undaunted, Linda quickly revised her lesson plan for teaching computer programming. Rather than begin with the PRINT statement, as she had originally planned, Linda handed out graph paper and asked each child in her classroom to select an object and draw it on the page. Then she proceeded to teach point plotting and COLOR statements, working from the graph paper images that her students had created. She taught the kids how to SAVE their programs on a disk and, after they were finished, how to use FOR...NEXT and IF...THEN loops to combine the class's work into one large computer program that would repeat itself over and over again.

The kids were thrilled as they watched the program run, waiting to see when their own piece of computerized art work would appear on the monitor. "What will we do next?" they wanted to know.

"How about learning a way to sign your art work — right on the computer screen?" suggested Linda.

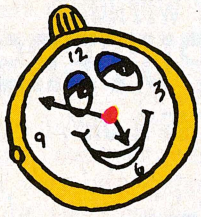
"Yes! Yes! How would we do that?" responded the kids.

It had taken her longer than expected, Linda admits, but after many weeks of programming, her seventh and eighth graders were finally ready to start learning the PRINT statement.

BE A REPORTER!

Come on, math teachers! We know you're out there! What exciting computer project has *your* class been working on lately? We'd like to tell our readers about it in this column.

Send a brief description of your project along with any photos you can spare. We'll pay $25 to $50 if we publish your story. Write: "Classroom Happenings," *Teaching and Computers*, 730 Broadway, New York, NY 10003. ■



RANDOM HOUSE MEDIA

IT'S TIME TO GO SHOPPING WITH THE BOARS!™

Count on the Boars to bring your students to new levels of math understanding. These two new software learning programs for the Apple II Series, 64K, teach the real life skills of handling money while shopping, and telling time. The Boars' Store and The Boars Tell Time feature high resolution graphics, full-color animation, and are priced right at $39.95. Both programs include a comprehensive Teacher's Guide with classroom activities and Blackline Masters for additional reinforcement. Special packet of 10 coloring books for $5.95 is available for The Boars Tell Time.

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COMPUTER LEARNING MONTH
OCTOBER '87

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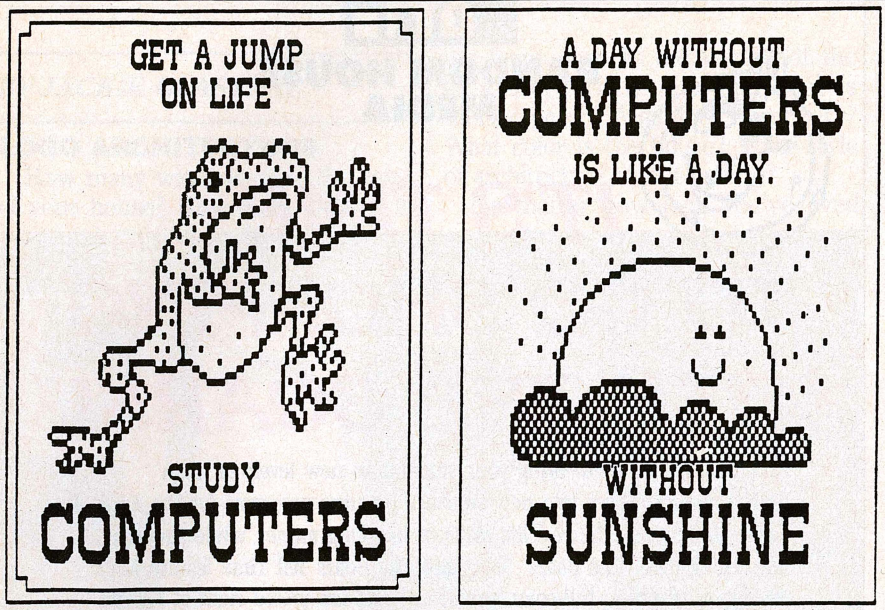
MICRO IDEAS

QUICK COMPUTER TIPS AND ACTIVITIES



One way to celebrate Computer Learning Month is to conduct a classroom sign contest in which students combine their best computer slogans and graphics.

FIVE IDEAS FOR COMPUTER LEARNING MONTH

October is Computer Learning Month. To celebrate, many educational software and computer companies, national education organizations, and state departments of education are providing special activities and materials for teachers, parents, and kids (contact Computer Learning Month, P.O. Box 19763, Washington, D.C. 20036-0763; 202/223-4338.) In addition, there are many things that you and your class can do to participate in this celebration of computer learning. Below is a sampling of ideas: Use these as a "jumping off" point to create your own agenda of activities for Computer Learning Month.

1. ***Conduct a Computer Learning Month sign contest.*** Allow each child a turn at the computer using *The Print Shop* (Broderbund), *Newsroom* (Springboard or Scholastic Edition), Logo, BASIC, or a graphic arts software program. Each child should combine a graphic image with a slogan to promote either Computer Learning Month, or computer learning in general. Print out the posters and hang them around your classroom. Have students vote on their favorites in a number of categories, such as "most original," "best design," "best slogan," and "funniest." Create awards for the winners using *Certificate Maker* (Springboard), *AwardWare* (HiTech Expressions), *Award Maker Plus* (Baudeville), or *Print Shop Companion* (Broderbund). Post the certificates on your classroom walls beside the winning entries.

Mike Muedeking
Waldorf-Pemberton High School
Waldorf, MN

2. ***Enlist parents' help*** in sprucing up your computer center. At our school, parents came to the rescue when the plastic dust covers that our district purchased for our computers began to show signs of wear. Some parents donated corduroy fabric and thread for new dust covers; others took on the job of sewing the new covers themselves.

To prevent the handsome new corduroy covers from fraying, the parents reinforced the seams with contrasting color fabric. The covers not only protect our computers from dust and other elements; they also brighten up our lab.

Karis M. Clason
Willow Glen Elementary School
San Jose, CA

3. ***Have students design their own stationery*** on the computer. All you really need is a word processing program — but "clip art" programs, such as *The Print Shop* (Broderbund), or *The Newsroom* (Scholastic or Springboard) can add spice.

If your students need an added incentive for creating the stationery, put together a list of companies that offer computer-related brochures, posters, pictures, product samples (including "freeware"), and other "freebies" to educators and students (don't forget to check out the offerings out there in honor of Computer Learning Month!). Have each child select one item from the list and, using his or her stationery, write a letter requesting a product sample. A few weeks later, "mail call" is guaranteed to become one of the most exciting parts of your school day!

Betty Roy
Arlington Elementary School
Poughkeepsie, NY
Craig Dickinson
Asa Adams School
Orono, ME

4. ***How Wrong Could They Be?!*** In 1977, Ken Olson, the president of the Digital Equipment Corporation, was quoted as saying "There is no reason for any individual to have a computer in their home." Five years later, with more than one million personal computers already in American homes, Digital began its own line of micros.

From the time that Charles Babbage invented the analytical engine — and even before — "experts" have been underestimating the powers of computers and technology. How many of their predictions, both true and false, can your students turn up on a research visit to your school library? What predictions are experts making today?

Once it's clear that not even experts can foretell the future, find out what your students think. What will the world of computers be like ten years or a hundred years from now? How do your students' opinions compare with those of today's "experts"?

Jackie Glasthal
New York, NY

5. ***Create a video*** of computer use within your community. Enlist the help of local businesses that use com-

puters in any way, shape, or form: banks, insurance companies, doctors' offices, grocery stores, the police department, local colleges, utility companies, and the transportation department — to name just a few. Ask each to assign a spokesperson to take part in your video project.

If you don't have a video camera, you will need to borrow or rent one for a few days. Set up an appointment and visit each business (by yourself or with a student crew). With the camera rolling, have your subject introduce him or herself, tell where he or she works, and how the computer is used there. Your students' interest will be piqued when they see "real people" describing computer use in their very own community. Best of all, the video can be used time and again, without imposing more than once on your speakers' time.

Beverly G. Meece
Portland Middle School
Portland, TN

WORLD SERIES SPREADSHEETS

October is World Series time. Have the baseball fans in your class use electronic spreadsheets to keep "running statistics" on the games. You'll need to create two spreadsheets, one for each team (or put both teams on one spreadsheet; one team at the top of the page, and the other on the bottom).

Mary Dalheim
New York, NY

Here's a possible template for one team:

	A	B	C	D	E	F	G
1			BASEBALL		STATS		
2	METS						Batting
3	Player	Singles	Doubles	Triples	Homers	At Bat	Average
4	Hernandez	11	3	3	1	27	S(B4..E4)/F4
5	Carter	13	2	1	0	24	S(B5..E5)/F5
6							

RE-INKING PRINTER RIBBONS

Re-inking faded fabric printer ribbons is an inexpensive alternative to buying new ribbons. To re-ink ribbons, I use a commercially-available re-inker — a motorized device that adds ink to ribbon cartridges. Below are some re-inking tips that I find helpful.

1. Re-ink ribbons in batches. Set up a box for collecting ribbons that need to be re-inked. When several ribbons have been accumulated, allot a block of time to re-ink the entire batch. This practice saves on inker preparation time as well as clean-up time.

2. Mark ribbons after re-inking. After each re-inking of a particular ribbon, place a mark on the top or underside of the ribbon cartridge with a wax pencil or permanent marker. You can then readily determine how many times a ribbon has been re-inked. This comes in handy when considering whether a ribbon has finally worn out and must be replaced.

3. Allow time for ink distribution. After re-inking a ribbon, make sure that the newly-added ink has been completely absorbed and evenly distributed within the ribbon's fabric before you place the ribbon back into a printer. A newly re-inked ribbon will usually yield poor results if placed immediately into a printer.

4. Store re-inked ribbons properly. Re-inked ribbons should be stored in reclosable plastic bags. Ribbons are then protected from drying out and are kept in convenient units, ready for printer use.

Perry Honaker
Educational Media Center
Alliance, OH

SEND US YOUR MICRO IDEAS

Do you have computer activities, bulletin board ideas, or management tips you'd like to share? Send them to "Micro Ideas," *Teaching and Computers*, 730 Broadway, New York, NY 10003. We'll pay $15 to $30 for each Micro Idea we publish. ■

Can 1131 schools in Minnesota be wrong?

Minnesota was looking for a software package for its 906 elementary schools that would:

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- Provide teachers with the classroom support they need.
- Strengthen the link between computers and the curriculum.

Their Choice? LogoWriter™

LogoWriter provides the perfect discovery environment.

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Teachers were so happy with LogoWriter, Minnesota decided to put it in all 225 junior high schools as well.

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LCSI

LogoWriter is available for the Apple IIe, IIc, IIgs, IBM PC and PC jr, and the Commodore 64 computer.

Circle 17 on Product Info Card.

Looking for ways to put your computer to work helping you teach science? social studies? writing?

Here's all you need...from *Teaching and Computers!*

Here, at last, are the classroom computer products that so many teachers have been asking for.

Products that will help you teach social studies, science, language arts, math–and not just computer skills.

Products packed with lessons that students can do on their own; others that you can complete in 15 or 20 minutes; still others that knit seamlessly into your existing curriculum plans to help you use the computer more effectively.

The costs are low, the variety is tremendous, and the excitement of teaching with the help of a computer is all yours. From the pages of the #1 classroom computer magazine for K-8: *Teaching and Computers.*

Computer Poster Pack

Grades K-8

8 colorful computer-awareness wall posters (16 × 22), each with reproducible worksheets that reinforce concepts taught on the posters: computer history, parts of the computer, the keyboard, BASIC programming, Logo, and more. Teaching Guide includes worksheet answers and suggestions for additional activities. Reprinted from *Teaching and Computers* magazine.

Item No. XY39341 $11.95

Micro Puzzles

Grades 3-8

Forty pencil-and-paper puzzles for independent student work. Perforated blackline masters photocopy well and help teach programming basics, computer history, computing vocabulary, computer applications, and robotics. Published previously in *Teaching and Computers* magazine.

Item Number XY39308 $6.95

Science Lesson Plans

Grades 3-8

10 brief science lessons from Teaching and Computers magazine (energy, nutrition, plants, animals, space, the human body), each with a complete plan (including reproducible worksheets) and each with an easy-to-use BASIC program already on a disk for you. Includes how to make your own science quizzes on any topic.

Apple
Item Number XY39309 $19.95

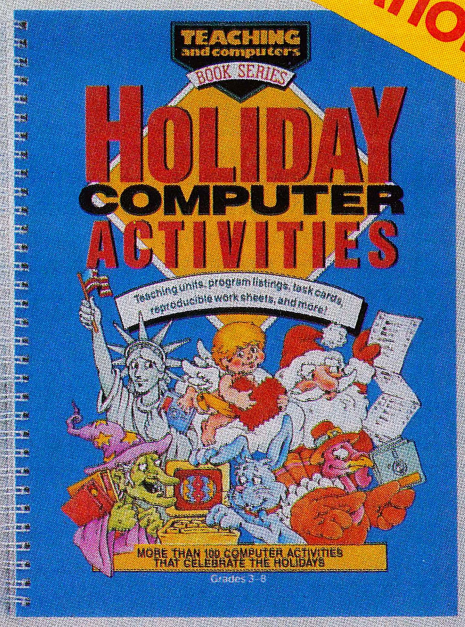
Social Studies Lesson Plans

Grades 3-8

10 social studies lessons from *Teaching and Computers* magazine (world geography, Black history, the stock market, election campaigns), each with a complete plan including reproducible worksheets and each with a ready-to-use program on a disk to save you time. Includes how to make your own social studies quizzes.

Apple
Item Number XY39278 $19.95

30-DAY EVALUATION OFFER!



Story Writing Task Cards

Grades 3-8

32 Task Cards, plus a data disk, that help students use a word processor to develop story-writing skills: writing descriptions, developing plots and settings, vocabulary enrichment, more. Requires Bank Street Writer word processing program.

Apple
Item Number XY39310 *$19.95*

The Computer Ideabook

Grades 3-8

More than 30 self-contained lesson plans any classroom teacher an use with any major machine to integrate the computer into such curriculum areas as reading, language arts, social studies, math, science, music, and art. Many lessons include reproducible worksheets, task cards, recommended software, and program listings.

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Grades 3-8

Next time you celebrate a holiday with your class, let your computer join in! More than 200 self-contained activities (Thanksgiving, Fire Prevention Week, Election Day, Black History Month, Mother's Day, Bicycle Safety Week) with reproducible worksheets, task cards, and BASIC program listings. For use with any major computer.

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XY39308 **Micro Puzzles**		6.95	
XY39309 **Science Lesson Plans**		19.95	
XY39278 **Social Studies Lesson Plans**		19.95	
XY39310 **Story Writing Task Cards**		19.95	
XY39046 **The Computer Ideabook**		17.95	
XY39047 **Holiday Computer Activities**		17.95	
XY64621 **Bargain Pack: All 7 products**		79.95	

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Circle 18 on Product Info Card.

THE THINK TANK

TASK CARDS THAT TEACH THINKING SKILLS

Could You Classify That, Please?

Each month this column provides four student activity cards for sharpening problem solving skills. This month, classification skills are taught through a combination of language and math activities.

ATTRIBUTES, RULES, AND DISCRIMINATION

Regardless of grade or subject matter, students are often asked to select objects that belong or don't belong in a given set. Kids use classification skills to compare and contrast periods in history, objects in nature, math equations, and story themes, to name just a few.

Three classification strategies are emphasized here. They are:

- The ability to classify items by similarities *(attribute identification)*.
- The ability to classify items by differences *(discrimination)*.
- The ability to determine criteria by which objects are grouped *(rule identification)*.

These strategies may be used individually or in any combination. To demonstrate, ask a child to circle the verb in a series of sentences. Internally the child identifies the attributes of a verb. He or she then discriminates verbs from nouns, adjectives, adverbs, and other parts of speech on the page. Finally, if you ask the child to find similarities among the verbs, he or she uses rule identification strategies. Perhaps all the verbs relate to a particular sport, or perhaps they all have an "ing" ending.

ABOUT THE TASK CARDS

The four activity cards on the next page help teach attribute identification, discrimination, and rule identification strategies. Although all four activity cards relate to the computer, the first does not require use of a computer. A Logo program is necessary to complete Task Cards 2, 3, and 4. Future problem solving activities in this column will also require the use of a Logo program.

PREPARATION

1. Punch out the task cards on the next page.
2. Load Logo into your computer. Type in the procedures on this page. Save the procedures on a blank diskette under the file name RULES.
3. Have buttons, cubes, or marbles on hand for students to use in the pre-task card activities.
4. Review the steps on each task card before having students complete the activities on their own.

THE PROCEDURES

```
TO RULEONE
   CLEARTEXT
   MAKE "SUBTRACT 2
   MAKE "NUMBER 12
   PRINT :NUMBER
   PRINT :NUMBER - :SUBTRACT
   PRINT :NUMBER - :SUBTRACT - :
SUBTRACT
    PRINT [GUESS MY RULE.]
END

TO GUESSONE
   PRINT [THE RULE HERE IS ]
   PRINT [SUBTRACT TWO.]
END

TO RULETWO
   CLEARTEXT
   MAKE "NUMBER 12
   MAKE "RULE 2
   PRINT :NUMBER
   PRINT :NUMBER/ :RULE
   PRINT :NUMBER/ :RULE/ :RULE
   PRINT [GUESS MY RULE.]
END

TO GUESSTWO
   PRINT [THE RULE HERE IS ]
   PRINT [DIVIDE BY TWO.]
END
```

PRE-TASK CARD ACTIVITIES

- Define the term *attribute* for your students (*a quality belonging to a particular person, place, or thing*). Name an attribute, such as *funny*. How many items — books, movies, toys, and so on — can students think of with that attribute? What other attributes do these items possess?
- Present your students with a number sequence, and ask them to tell you what should come next. What number follows in the sequence 2, 4, 8, 16, 32, for example? Have children use blocks, buttons, or marbles to visualize the problem, and encourage them to verbalize methods for solving it.
- Before using this month's task cards, students must know how to create, define, and edit Logo procedures. Students will learn to use the commands MAKE and PRINT. No prior experience with these commands is necessary.

TASK CARD ACTIVITIES

Task Card 1. A student selects a computer related attribute and lists words that do and do not contain it. A second student's goal is to guess the attribute that his or her partner has in mind. Examples are given.

Task Card 2. Students identify the attributes of two different series of numbers. Students then theorize about the series of numbers that a Logo procedure will print. Students test their theories on the computer.

Task Card 3. Students compare procedures that perform similar functions.

Task Card 4. Children alter a procedure to subtract, multiply, or divide, rather than add.

POST TASK CARD ACTIVITIES

- Have each child create a number series that follows a specific rule. Then have each child challenge a classmate to discover the rule at work in his or her number series.
- Challenge each of your students to create a procedure that follows the rule he or she developed in the post task card activity above. ■

Thomas E. Boudrot, author of *Byte-Sized Activities: The Generic Word Processing Book*, is an education specialist for the Division of Educational Technology, Texas Education Agency, Austin, TX.

Philip Scheuer

CLASSIFICATION 1 TASK CARD

I like computers. . . I don't like machines

Here's a game that lets you say what you think about computers. . .sort of!

1. Choose a partner. Decide which of you will be the leader first. The leader thinks of a category related to computers without saying out loud what it is. Then the leader lists things that fit, and do not fit into the category. Here's an example:

- *I like* BASIC. . .*but not programming.*
- *I like bits and bytes. . .but not computers.*
- *I like bugs. . .but not errors.*

What is it that I like?

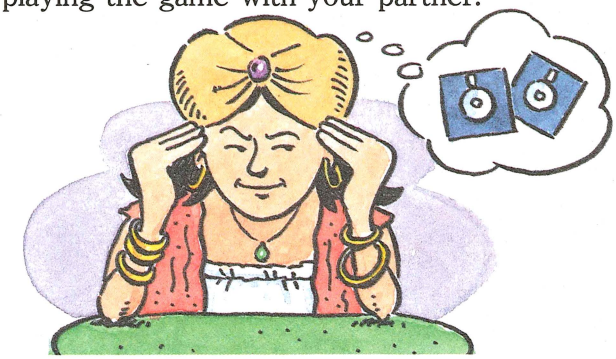
(*Answer: I like computer words that begin with the letter "b."*)

2. Get the idea? Try another, and see how you do this time.

- *I like RAM chips. . .but not diskettes.*
- *I like ROM chips. . .but not the keyboard.*
- *I like circuit boards. . .but not the monitor.*

Can you guess what I'm thinking of now?

3. When you think you know, turn this card upside down to see if you were right. Then try playing the game with your partner.



(*I like things on the inside of the computer.*)

CLASSIFICATION 3 TASK CARD

What Will Come Next?

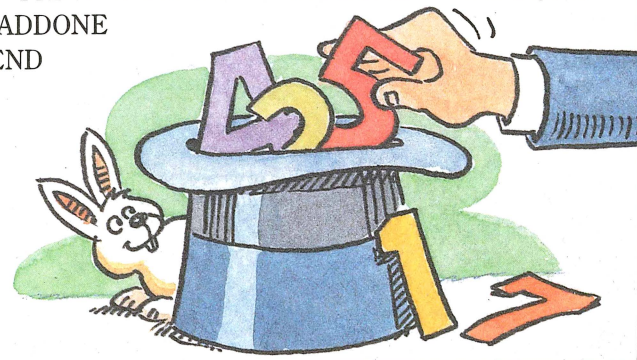
Complete Task Card 2 before you try the activities on this card.

1. Load Logo into your computer. Then type in the procedure below. The procedure will print out the numbers 5, 10, 15, 20. Find the line that reads MAKE "NUMBER 5. Edit it to read MAKE "NUMBER 8. What happens when you run it now? Can you guess why?

2. Change the line MAKE "ADDONE 5 to read MAKE "ADDONE 2. Define this new procedure and run it. What does the computer do now?

3. Here's a challenge. Edit the procedure so that it will print out the numbers 1, 2, 3, 4. (*Hint:* you will have to change two lines: the one that reads MAKE "ADDONE 5 and the one that reads MAKE "NUMBER 5.) Define and run your new procedure to see if you were right.

```
TO RULEFOUR
   MAKE "ADDONE 5
   MAKE "NUMBER 5
   PRINT :NUMBER
   PRINT :NUMBER + :ADDONE
   PRINT :NUMBER + :ADDONE + :ADDONE
   PRINT :NUMBER + :ADDONE + :ADDONE +
:ADDONE
END
```



CLASSIFICATION 2 TASK CARD

3-6-9-12

Complete Task Card 1 before you try the activities on this card.

1. What do the numbers above all share? Three was added to each in order to get to the next number in the set. The numbers all follow the rule "add three."

2. Load Logo into your computer. Ask your teacher for the disk of RULES procedures.

3. Insert the RULES disk, type LOAD "RULES (or READ RULES), and press RETURN.

4. Type RULEONE and press RETURN. What rule do the numbers on the screen all follow? When you think you know, type GUESSONE and press RETURN. Were you right?

5. Now type RULETWO. What rule do these numbers follow? When you think you know, type GUESSTWO to check your answer.

6. Look at the procedure below. It prints out a list of numbers, just like RULEONE and RULETWO. What numbers will it print? When you think you know, type the procedure into the computer. Define and run the procedure. Were you right?

```
TO RULETHREE
   MAKE "NUMBER 7
   MAKE "RULE 4
   PRINT :NUMBER
   PRINT :NUMBER + :RULE
   PRINT :NUMBER + :RULE + :RULE
END
```

CLASSIFICATION 4 TASK CARD

New Rules

Complete Task Card 3 before you try the activities on this card.

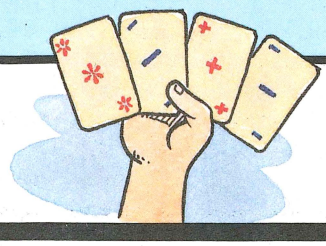
1. Load Logo into your computer. Then type the procedure below and run it. How is this procedure different from procedures on Task Cards 2 and 3? The procedure prints out a series of numbers that follow the rule "multiply by 2." In Logo, the symbol "*" means multiply.

2. Use the Logo editor to change the procedure so that it follows the rule "multiply by 4." Define and run the new procedure. Is your answer correct?

3. Now edit the procedure so that the new rule is "subtract by 1." (In Logo, the symbol "-" means subtract.) How many lines must you change? Define and run the new procedure to see if you are right.

4. Edit the procedure again so that the rule the procedure follows is "divide by 3." (In Logo, the symbol "/" means divide). Define and run the new procedure. Did it do what you expected?

```
TO RULEFIVE
   MAKE "MULTIPLY 2
   MAKE "NUMBER 9
   PRINT :NUMBER
   PRINT :NUMBER * :MULTIPLY
   PRINT :NUMBER * :MULTIPLY * :MULTIPLY
END
```



THE WELL-MANAGED CLASSROOM

COMPUTER SOLUTIONS FOR ADMINISTRATIVE TASKS

Integrating Your Software Tools

BY SUSAN C. JACOBY

As an educational computing consultant, Susan C. Jacoby has spent a lot of time in classrooms. "Although many teachers are computer literate, their literacy runs more to using The Print Shop *and programming in Logo than helping themselves," she observes. Susan's column each issue will focus on ways the computer can make* your *work easier, faster, and more effective.*

If you're like most computer using teachers, you got your feet wet with word processing; you've dabbled in data bases and other applications. Now you're ready to take the productivity plunge. Could integrated software be the way to go?

An integrated program is one which combines several applications (such as word processing, data base management, spreadsheet, electronic communications, or graphics) into a single package. Several popular packages, such as *AppleWorks* (Apple Computer, Cupertino, CA), *PFS: First Choice* (Software Publishing Corp., Mountain View, CA), and *Framework* (Ashton-Tate, Torrance, CA) are well-suited to the needs of teaching professionals.

There are decided advantages to using integrated software. The linked applications usually share many of the same commands, so there are fewer to learn. Integration makes it easy to switch from one application to another without changing disks, and allows you to share data among applications. Within one package, you might create your lesson plans, progress reports, and letters with the word processor; collect and organize student information with the data base; turn the spreadsheet into an electronic gradekeeper; and then merge information from all three into a personalized letter to parents.

How do you make the move to integration? First, find out if your school or district administrative office already uses a specific package. If so, you'll probably have access to plenty of technical support, inservice training, and supplementary materials. If you're on your own, try to find another teacher who's also interested in investing in his or her own professional productivity, and decide together which software will best suit your needs. Then sign up for any dealer-provided training or courses offered at your local community college. If none is available, don't despair: the best packages include documentation and tutorials that make independent learning a breeze. For example, *AppleWorks* comes with an excellent tutorial on disk; *First Choice* has a print tutorial called "Quick Tour" designed to demonstrate the program's basic features; there is a student edition of *Framework* to help you learn your way around the program. And there's usually a selection of guidebooks for the more popular packages at your library or local bookstore.

Once you've conquered the basics, be on the lookout for templates (outlines of commonly used forms) and other shortcuts to make your software use even more productive. Since *AppleWorks* is the most popular integrated package in use at schools, here are some examples of helpful resources:

***Teacher's Idea & Information Exchange**, c/o James Carlisle, RD 2 Box 754, Cobleskill, NY 12043.* This teacher's group exchanges news, tips, and *AppleWorks* templates. Each new monthly disk is $3, unless you send in your own disk with a template to contribute, in which case your charge is $1. *(Circle 117 on Product Info Card)*

***SchoolWorks/Teacher Version,** K-12 Micromedia Publishing, 6 Arrow Road, Ramsey, NJ 07446.* This disk includes templates for common teacher applications, such as seating charts, lesson plans, progress reports, and testing. $99, with discounts for purchasers of two or more disks. *(Circle 118 on Product Info Card)*

***The WORKS Newsletter,** Editor: Dave Chesebrough, P.O. Box 72, Leetsdale, PA 15056.* Written by teachers, students, and parents, this newsletter offers specific help on using *AppleWorks* in schools. Also includes reviews of software, hardware, and books. $19.95/year. *(Circle 120 on Product Info Card)*

***Applying AppleWorks,** Bristen Press, P.O. Box 336, New Hartford, NY 13413.* A teacher-written book of introductory information plus step-by-step instructions for creating the most useful teacher templates. $13.45 per copy, including postage. *(Circle 119 on Product Info Card)*

***AppleWorks for Educators: A Beginner's Workbook,** International Council for Computers in Education (ICCE), 1787 Agate Street, Eugene, OR 97403.* A workbook and accompanying diskette of working examples designed especially for teachers. $15 per copy; mutliple-copy discount available. *(Circle 121 on Product Info Card)*

YOUR TURN

How do you use your computer as a productivity tool? I'd like to devote one column this year to *your* best ideas. Contributions should be mailed **BY DECEMBER 31, 1987** to "The Well-Managed Classroom," *Teaching and Computers,* 730 Broadway, New York, NY 10003. ■

TECHNOLOGY FOR TEACHERS

HELLO OUT THERE!

HOW TO EXPAND YOUR CLASSROOM HORIZONS WITH TELECOMMUNICATIONS

BY CANDY COLBORN

Imagine turning on your classroom computer and finding yourself in the midst of a conference on Logo, special education, or critical thinking skills. Imagine sharing your own thoughts at this "online" event and then, after the conference has ended, using your computer to "call up" each new contact you have made to exchange lesson plans, ideas, and tips.

Now imagine using that same computer to access software programs that your school district does not own, or finding a teacher in another city or state — or even another country — whose students and yours can "correspond" — electronically.

Does all this sound futuristic? It's not. Every day, teachers, administrators, librarians, and students the world over are using the power of personal computers to reach one another — within the bounds of an average district's budget, and regardless of their computers' compatibility. They have entered the world of *telecommunications.*

WHAT TELECOMMUNICATIONS CAN DO FOR YOU

Having telecommunicated for three years now, it's hard for me to imagine my school life without it. It would be like going back to a manual typewriter after using a word processing program.

For example, reaching another teacher during school hours used to mean the frustration of hearing "She's in a class right now" or, "He's on cafeteria duty for the rest of the week." With telecommunications, you can not only leave a message you'll be sure that the other person will receive, but if it's long distance, you may even be able to have the computer dial the number and leave the message in the middle of the night, when calling rates are lowest.

With a modem (more about that later) and telecommunications software both at school and at home, your paper-toting days may be over. You'll be able to write a lesson plan tonight and then send it electronically to your school for use tomorrow. Or you can send student word processing files to your home to grade over the weekend and have them back in class by Monday morning.

But the power of telecommunications does not stop there. More than allow you to *upload* and *download* — that is, send and receive — messages, notes, software programs, and lesson plans, telecommunications provides you with access to constantly updated data bases of information, such as those established by the Educational Resources Information Center, the Council for Exceptional Children, and Grolier's Academic American Encyclopedia. With a few keystrokes you can find out the latest in grant information, contests for students, job openings, and new legisla-

(continued)

Ron Zalme

tion. Your students can use the computer to gain access to a world of knowledge, impossible to physically store in even the largest of libraries.

NINE STEPS FOR GOING ONLINE

But how do you get started? How much will it cost you and your school district? Who will you call? In the Nine Steps for Going Online, listed below, we'll take a look at these and related questions.

1. Find a mentor. Try to find someone in your area who has already been initiated into telecommunications, someone who can provide you with both technical and moral support as you begin to experiment with the technology. If none of your colleagues seem likely prospects, begin with your students. Do any of their parents own a computer equipped with a modem? How about friends in another classroom or a nearby school district? Contact the computer teacher at your nearest high school. Perhaps he or she can put you in touch with a modem-using student or parent.

2. Ask questions. When you locate someone who telecommunicates, find out what type of modem that person uses, how often he or she uses it, and for what purposes. Since you may be interested in calling some of the same numbers that your mentor does — especially if they are local — start a "phone book" in which you list online numbers, and what each one will connect you with. Find out if there is a fee for reaching any of these numbers (other than the regular telephone costs) and keep a record of that in your phone book as well.

3. Know what you will need. In addition to a telephone line (see below), you will also need a modem and telecommunications software. A modem (short for *modulator/demodulator*) changes the language that your computer speaks into the language that the telephone speaks (modulation), and then changes it back again (demodulation). The telecommunications software program allows you to communicate with your modem, or other modems, and tell them what you want them to do.

Be aware that there are different types of modems, just as there are features to look for in telecommunications software. "All About Modems and Software" at right lists some features that you may find it helpful to have in each.

4. Comparison shop. You might begin your "shopping spree" with a look at the list of books and articles below, then go on to as many other related books and magazines as you have the time for. Start a price comparison file. And don't skip the ads!

You're probably already on a number of computer-related mailing lists. Don't throw that "junk mail" away if it relates to telecommunications! If a promotion piece lists specific hard-

(continued on page 28)

REFERENCES AND RESOURCES

Before you buy telecommunications hardware or software, do a bit of research on what is out there. The books and magazine articles mentioned below are meant to provide you with a starting point. Many of these review, or at least list, modems and software that may be of particular interest to you as an educator.

MAGAZINES

"Five External Modems Designed to Keep Educators Talking" by Larry Pogue; *Electronic Learning Magazine.* March, 1987 issue. Page 24.

"Modems in the Mainstream: Tips for Buying the Practical Peripheral" by Ric Manning; *Family Computing Magazine.* March, 1987 issue. Pages 24–26.

"Guide to Communications Software: You Need It to Make Telephone Calls with Your Modem" by Ric Manning; *Family Computing Magazine.* April, 1987 issue. Pages 18–20.

The entire April, 1987 issue of *The Computing Teacher* (the journal of The International Council for Computers in Education) is devoted to telecommunications.

The April, 1986 issue of *Technological Horizons in Education (T.H.E) Journal* is devoted to telecommunications, and includes a five-page directory of modems for education.

The April, 1987 issue of *A+: The Independent Guide for Apple Computing* has two major articles on telecommunications: "Online: A Hardware Buyer's Guide" by Gary B. Little, and "Software Survey" by Michael Fischer. Pages 30–48 and 62–63, respectively.

BOOKS

The Complete Handbook of Personal Computer Communications: Everything You Need to Know to Go Online with the World by Alfred Glossbrenner. (St. Martin's Press, 1983.)

Dialing for Data: A Consumer's How-To Handbook on Computer Communications by David Chandler. (Random House, 1984.)

Get Connected: A Guide to Telecommunications by Tom Kieffer and Terry Hanson. (McGraw-Hill, 1987.)

Once you're online, you may also want to take a look at these titles:

How to Look it Up Online by Alfred Glossbrenner. (St. Martin's Press, 1983.)

The Computer Phone Book by Mike Cane. (New American Library, 1986.)

Online Searching: A Primer by Carol Fenichel. (Learned Information, 1984.)

Getting Online: A Guide to Accessing Computer Information Services by David M. Stone. (Prentice-Hall, 1984.)

LOOK FOR THE FEATURES THAT BEST MEET YOUR NEEDS

ALL ABOUT MODEMS AND SOFTWARE

Shopping for a modem and telecommunications software may seem like an overwhelming proposition. But take heart! Below are some definitions and questions to ask yourself as you shop.

MODEMS

There are three basic types of modems:

- **An acoustic coupler modem**, the most "old fashioned" of the three, is also the least common. To use it, you place your telephone receiver into two rubber cups on the modem. The least popular type of modem, the acoustic coupler has a tendency to pick up outside noises easily, thus scrambling data being received.
- **An external modem** and the internal modem (below) are known as *direct-connect* modems. The external modem accepts the same modular plug as a standard telephone. (Or, you can get a dual-jack extension line which keeps both the phone and the modem connected at the same time.) The modem plugs into the computer with an RS-232 serial port, so you'll want to make sure the serial port you purchase is compatible with your computer.
- **An internal modem** is basically a circuit board that you snap into your computer. (Some computers have an internal modem built-in already.) If you have ever plugged in a joystick, a mouse, or a KoalaPad, you will have no problem with an internal modem. Simply snap it into place, plug your phone line into the board, and you're ready to go online.

Regardless of the type of modem you choose, you'll need to pay attention to *baud rate*. Baud refers to the speed at which information can be transmitted. A baud rate of 300 is comfortable for most new users, allowing you to transmit between 250 and 300 words per minute. If you plan to upload or download very large amounts of data, or make a good number of long distance calls, you may want a modem that allows you the option of selecting between 300 and 1200 baud — thus saving you on calling costs. In most cases, though, the faster the modem can go, the more expensive its price.

TEN QUESTIONS TO ASK YOURSELF BEFORE SELECTING A MODEM:

Q *Is it compatible with your computer system?*

Q *Does it offer a baud rate of 300 or 300/1200 bits per second (bps)?*

Q *Does it provide both full-and half duplex capabilities? (A full-duplex modem allows you to both send and receive information at the same time. With a half-duplex modem you must wait for the computer to finish sending data before you can start. Some telecomputing services, like The Source, require that you use a modem with full-duplex capabilities. Be sure that the service you subscribe to does not have any such requirements — unless you are able to meet them.)*

Q *Is it Hayes compatible? (Hayes is the industry standard. If the modem you purchase is Hayes compatible, most of the newest and best telecommunication software packages will run on it.)*

Q *Does it allow you to store frequently dialed numbers?*

Q *Can it be programmed to automatically answer a phone?*

Q *Can it be programmed to automatically redial a number that has already been dialed unsuccessfully?*

Q *Does it have a clockcard — so that you can program it to dial a number, receive mail, or perform another function at a specific hour? (If your computer has a built-in clock, a clockcard is not necessary.)*

Q *Does it have a built-in speaker — allowing you to hear whether you've dialed a wrong, disconnected, or busy number?*

Q *Do you need an RS-232 serial port interface card?*

TELECOMMUNICATIONS SOFTWARE

There are two types of telecommunications software — terminal software and bulletin board software. Bulletin board software is *only* necessary if you want to set up your own bulletin board system. For all other telecommunications uses, terminal software is what you need.

TEN QUESTIONS TO ASK YOURSELF BEFORE SELECTING SOFTWARE:

Q *Is it compatible with your computer?*

Q *Is it compatible with your modem?*

Q *Is it considered user friendly; that is, does it have Help screens, and easy-to-understand menus?*

Q *Does it allow you to create and store pre-set command sequences — known as macros?*

Q *Does it allow you to store frequently dialed numbers?*

Q *Does it allow you to save — or print — information while you are online?*

Q *Does it allow you to turn the printer on and off with the touch of a key?*

Q *Does it offer Xmodem, or a similar error-checking device? (This is only an essential if you plan to download software, which must arrive error-free.)*

Q *Does it allow your computer to receive data when the computer is unattended?*

Q *Is there a preview or return policy on the program?*

(continued from page 26)
ware or software, and gives prices, save it for your file.

Also, do not rule out the possibility of using (at least in the beginning) a public domain telecommunications software program, or a program that comes pre-packaged with your modem. Many of these inexpensive (or free!) programs are just as good as commercial software. Some of the public domain programs are even specifically geared toward education.

5. Figure out what the costs will be. When I first went online my startup costs ranged between $400 and $500. Yours should be much the same, although it will depend a good deal on how much it costs to establish a telephone line in your area (see below).

Keep in mind that there will also be monthly telephone costs. According to a recent survey, those costs tend to run between $15 to $75 a month — with the lower end being more common. Once established, this fee may fit into your school's regular utility budget. Check with your principal to find out.

6. Look into sources of funding. When you have narrowed down the selection of software program and modem to perhaps two or three of each, find out whether their manufacturers offer special discounts to educators. Never pay retail! Since being online can support and enhance *any* area of your regular curriculum, you might look into grants that may be available to help you get started. Your school budget, bake sales, fund raisers through your student council or computer club, and the parent-teacher organization at your school all are potential sources of funding.

7. Install a telephone line. Unless you purchase an acoustic coupler modem (see the directory), you do not actually need a telephone to telecommunicate. You simply need access to a telephone line and a cord to plug into it. What *is* recommended, however, is a *dedicated* telephone line — one that is used solely for the purpose of telecommunicating. Though the cost of hooking up such a line can range as high as $2,000 in some remote areas (depending on the telephone company as well as the school's existing wiring), yours is more likely to be around $200 (which I've included in the $400-$500 total figure mentioned above).

If a "private line" is out of the question, you *can* go online using a telephone line already installed in your school. But be sensitive to the fact that your co-workers need the phone lines to make appointments, contact parents, and do a million other things between classes. It is essential that you and they establish a schedule of who will have use of which line at what hours. Arrange a meeting with your principal and school staff. Perhaps there is a line in the school that usually sits idle, or certain hours that the telephone is rarely in use. Just taking the time with your co-workers to explain what you are doing can help you to win advocates for your telecommunicating cause! Later, when the modem has been up and running for a while, perhaps you and your principal can sit down and reconsider the feasibility of installing a separate line for the computer.

8. Set up an area for telecommunicating. Place your computer as close to your telephone jack as possible. If there's a sizable gap, you can bridge it with ordinary phone cord secured with duct tape.

Keep the computer area stocked with supplies that may come in handy while you are online — the instruction manuals for both your modem and telecommunications software program, a simplified set of instructions for going online, and the "phone book" that you have been putting together (which should include a page for the passwords that you will be assigned as you use your system. As a rule, you may want to keep this page of passwords out of your student's reach.) And always have a pen or pencil and paper on hand to jot down notes while online.

9. If possible, hook up a printer. If the telecommunications software you purchase allows you to save information going across the screen in a printer's copy buffer, leave that copy buffer on whenever the modem is in use. Then, when you log onto a new bulletin board system, print out the system's main menu and commands. The next time that you go back to that bulletin board, you won't have to waste online time calling up the bulletin board's "Help" screen.

Now, have you got everything? You're ready to go online!

BUT...WHO AM I GOING TO CALL?

There are three basic types of online communication. Let's look at each one, and see what it can do for you.

1. An electronic bulletin board system (or "BBS") allows you to post messages, requests, questions, and responses that are open-ended and not personal in nature. Most bulletin boards are geared toward an audience, such as teachers, but categories can be even more specific than that — teachers of special education, for example, or teachers who use Logo in the classroom. Other bulletin boards contain student short stories, student surveys and results, or — a very common type of bulletin board — hints for playing popular adventure games.

Though many bulletin boards require a small fee to join, most also have a "guest access" policy, allowing you to explore the board at least once before deciding whether or not it is for you. This type of electronic "visit" to a local bulletin board is a good (and rather inexpensive) way to get a feel for what an online bulletin board can be. And your first bulletin board may very well lead you to others specifically suited to your needs.

Ask your mentor to suggest at least one local online number that you can call — or check with a local computer store, a computer users' group, or a college in your area. Another place to look for a friendly BBS is the National Directory of Bulletin Board Systems, an annual catalog of about 1,000 homegrown online services. You can get a copy by sending a check or money order for $19.95 to Meckler Publishing, 11 Ferry Lane West, Westport, Ct 06880; 203/226-6967.

2. Electronic mail (or "E-Mail," for short) is a part of almost any electronic bulletin board. Instead of a "public" message, E-mail allows you to target correspondence to a particular user or set of users. No one reads an E-Mail message except the sender, the person to whom it is addressed, and the bulletin board's *system operator* — or "sysop" — who is able to read anything that is posted on his or her board.

To use an E-Mail system you need to have a user number — or address — as well as, in many cases, a

(continued on page 30)

INFORMATION VENDORS

Information systems are simply vendors of services produced by many different companies — just as a bookstore is a vendor of books published by many different companies. To choose the best system for your needs, you'll want to find out exactly what services each one provides. Below, you'll find a short description for each vendor and a toll free off line phone number to get your research started.

Most vendors will respond to your inquiry with a packet describing the services they provide, along with the current subscription rates. You may also be eligible for either guest access privileges or a complimentary online demonstration. Take advantage of these options before you subscribe. Also, find out if any of the vendors that interest you provide reduced membership rates to educators. Many do.

CompuServe: 800/457-8650 — With more than 350,000 subscribers, CompuServe is the most-used information vendor in the United States. It offers the widest range of services for the general user, including news, weather, sports, business, investment information, electronic mail, teleconferencing, a personal computing section, travel sources, shopping, games, and leisure.

The Source: 800/336-3330 — A full service information vendor, The Source is very similar to CompuServe, but with fewer subscribers. No online demonstration is available.

Delphi Net: 800/544-4005 —Delphi Net can connect you with some of the most comprehensive data bases available. It also offers an online encyclopedia, access to various research libraries, and consumer services similar to those described above.

Bibliographic Retrieval Service (BRS): 800/468-0908 — BRS offers access to 100 or more data bases in a wide variety of fields, including business, education, and medicine. Service is available at several different subscription levels.

Dow Jones News/Retrieval Service: 800/257-5114 — Dow Jones is *the* source for accurate, up-to-the-minute business news. It offers 35 separate services, including stock quotations, news, full text of *The Wall Street Journal*, and many of the same services available on other systems. An Educator's Guide of online project ideas for all grade levels is also available.

Dialog Information Service: 800/3DI-ALOG — Billing itself as "the world's largest collection of online information," Dialog offers a main information retrieval service, a "Knowledge Index," the Dialog Business Connection, Dialog OnDisc products, and the Dialog Medical Connection. A new addition to Dialog, the Classroom Instruction Program (CIP), is designed to introduce online search techniques to students. Classmate, the CIP for elementary, high school, and undergraduate students, provides complete curriculum-supporting materials. A teaching guide is also available.

GENIE (The General Electric Information Services): 800/638-9636 — GENIE offers a wide range of services, including an encyclopedia, teleconferencing, news, and financial information. It does not, however, match the depth of a service like CompuServe. Connect rates are lower, which is helpful — *if* you are able to find what you are looking for.

NewsNet: 800/345-1301; in PA, 800/537-0808 — Every day 3,000 articles are added to this collection of newsletters from more than 300 sources covering major industries and professions. Both current and back issues are online in full text. There are no start-up or monthly subscription fees. Connect time rates for educators are available.

NEXIS: 800/227-4908 — NEXIS is a news service that offers full text from news wires, magazines, and newspapers, including *The New York Times*. Also available through NEXIS are LEXIS, a legal data base; and MEDIS, a medical data base.

VU/TEXT: 800/323-2940 — VU/TEXT contains full text from many local and regional newspapers, as well as 16 other data bases, including the Associated Press Newswire and Facts on File. VU/TEXT must be accessed through one of the packet switching services, Telenet or Tymnet (see below).

Einstein: 800/227-1936; in CA, 800/982-6140 — Einstein, Addison-Wesley's educational market version of a database service called EasyNet, offers educators a fixed cost structure on information retrieval. Einstein provides simple, uniform access to nearly 90 data bases, pre-selected for their relevance to upper elementary, junior high, and high school curriculums. A Teachers' Guide, including worksheets and ideas for both on- and offline activities will soon be available, as will a tutorial simulation disk.

PACKET SWITCHING SERVICES

Tymnet. Call: 800/368-3180
Telenet. Call: 703/689-6300
Uninet. Call: 800/821-5340

The packet switching services allow you to access a vendor's system by dialing a local online phone number. Dialing locally, of course, saves you money. Since these are international services, U.S. data bases can be accessed from abroad, and overseas data bases can be accessed locally.

For more information about packet switching services, contact the numbers above, or look in a telephone directory for a local number.

password. These will be provided to you when you log on. In addition, it may take a day or two for the systems operator to "verify" you before you can call back and leave electronic mail.

3. The information vendors — also referred to as information networks, information utilities, information retrieval systems, or commercial data bases — offer the most in online services to any telecommunicator. Registration with such a vendor provides you with access to both bulletin boards and electronic mail services, as well as the resources to do just about any type of research, make reservations with any airline, check today's Dow Jones quotations, shop for clothing or a new modem, and multiply the holdings of your current software library. And this is just the beginning! The list of services offered by these giants of the industry is growing every day.

For a brief description of the major vendors, along with their contact information, see page 29. Rate information has not been included because it is so readily subject to change.

YOUR FIRST TIME ONLINE

When you are ready to place that first online call, carefully read the instructions supplied with both your telecommunications software program and your modem. Prompts will also appear on your computer screen as you work. Whether you are calling a bulletin board or an online data base, you will usually find that there is a "Help" screen, as well as specific on-screen instructions for new users. Take a look at both, if they are offered.

When you log onto a bulletin board for the first time, you may be assigned a password. *Be prepared to write it down.* Often the system will then "log you off," or end the connection, and ask you to call back.

Don't be concerned about having something to say — or write —once you are connected with a bulletin board. Read through the messages that you find posted there. If you have nothing to add, jot down (or print out) any information that may be useful to you — such as other online numbers that you may want to try calling. You can then log off without a response — once bitten by the telecommunications bug, it's only a matter of time before you'll be back online! ■

Candy Colborn is a media specialist at Cottonwood Creek Elementary School, Cherry Creek School District, in Englewood, CO. She would like to extend her thanks for technical assistance to ***George Willett***, teacher on special assignment with the Denver Public Schools; and ***Len Scrogan***, director of Computer Education, Albuquerque Public Schools, Albuquerque, NM. Both are instructors in the Denver Outreach Program of Lesley College, Cambridge, MA.

GETTING KIDS READY TO GO ONLINE

Looking for cost effective ways to prepare your students to telecommunicate? Here are some ideas for acquainting them with basic online concepts and skills — even before you've purchased a modem!

1. THE MESSAGE CENTER

This first activity will help students understand the differences between electronic bulletin boards and electronic mail systems.

Preparation: Cover the top half of an classroom bulletin board (the non-electronic kind!) with a dark color construction paper, and the bottom half with a light, contrasting color paper. In the upper left hand corner of this wall display, use cut-out letters to post the words "Bulletin Board." In the lower right hand corner, post the word "Mail."

Brainstorm with your students ten or fifteen topics that might be of interest to the entire class. (Examples include animals, hobbies, movies, music, books, sports, games, and computers.) From that list, have students vote on their five favorites.

Assign a color to each interest area that your students have selected. List the color assignments on a reference chart in the center of the wall display, straddling the dividing line between the "mail" and the "bulletin board" portions of the board. Then have each child select a secret code name to use during this activity (but not to share with anyone else in class).

Activity: Hand out business-size envelopes, and have each child write his or her code name in the space on the envelope where the return address usually appears. Along the lower portion of the envelope, have each student use crayons to draw color strips, indicating which one, two, or three of the five topics best match that child's interests. Hang these envelopes alphabetically by code name on the lower portion of the wall display.

Have each child select one of the five interest areas posted in the center of the wall display. Each student should then write a private mail message to the other children in the class who share that interest. If there are ten children in the class who share a child's interest in sports, for example, the student must copy his or her "sports" message ten times, and put a copy of the message in each envelope marked "sports." Remind children to sign their code name to any mail that they send. Those who receive messages can then send a personalized reply.

Next, have each child in your classroom write a memo to post on the bulletin board portion of the wall display. These messages might be questions, comments, or "mini-facts" about one of the five topics, or about any other topic of general interest. These messages may be either signed or unsigned.

Over a several week period, have students visit the wall display regularly and respond (by bulletin board or E-mail) to at least one message posted there each time.

Discussion: At the end of several weeks, hold a class discussion about this communications experiment. How did the bulletin board and mail portions compare? What similarities and differences can students think of between these communications systems and their electronic counterparts? As part of the discussion, have students divulge their secret identities. Did the kids know who they were corresponding with? Did know-

(continued on page 47)

COPY

NOTES

WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

TEACHER'S GUIDE

October 4–10 is Fire Prevention Week. This month's poster is an ideal resource for teaching fire safety to children. It provides important fire safety tips, facts about fire, and news about how computers are being used to fight some of these fires. The poster also suggests computer-related activities on the topic. The flipside of the poster contains three blackline masters that reinforce and extend the poster material.

USING THE POSTER

The poster is divided into six main sections. Here is how to get the most from each.

Be a Fire Marshall! Start with this quiz on fire safety hazards. Use it as a pretest to see how aware your students are of fire safety. *(Answers: Row one, left to right: overloaded electrical outlet, space heater located too close to blowing window curtains, gasoline being poured on barbecue fire. Row two: open paint cans stored in a pile, kids playing with matches, paper towel dispenser too close to stove.)*

Help students list other fire hazards on the chalkboard, such as throwing away cigarettes that are still burning and storing rags that are soaked with grease or oil. Have children check your school and their homes for these and other hazards.

It's a Fact That. . . Communicate the impact fire has had on our country by reviewing the fire statistics in this section. Encourage students to find other fire statistics and to list them on the chalkboard.

If Clothes Catch Fire. . . Stop, drop, and roll is the best action you can take if your clothes catch fire. This section provides a good illustration of this action. Discuss with kids why, if their clothes catch fire, they should stop immediately, and how rolling on the ground can help put out the flames. Then have them practice stop, drop, and roll.

Make a Fire Map It is always a good idea to map out the fire alarms, exits, and a proposed escape route that children would be expected to use should a fire break out in school. This activity suggests the class use a computer to print out a "professional" looking map. As a group, follow the escape route you designed, pointing out the alarms and exits.

Help students look up the telephone number to dial in case there is a fire at home. When reporting a fire, students should give their name and the location of the fire. Stress that, in a real home fire, children should leave the house first — then call.

Tell students that if they see or smell smoke in their homes, they should always crawl to an exit. Smoke rises to the top of a room, therefore, the air closest to the floor should be the freshest. Smoke can be as dangerous as flames.

Spread the Word about Safety This activity suggests students use graphics software to create flashy signs about fire safety. There are other ways to communicate safety tips; perhaps kids would like to write a song or skit on fire prevention.

Computers Fight Forest Fires This section reports on how computers are being used today to fight forest fires. Invite research-minded students to search newspapers and magazines for ways computers are used to fight other kinds of fires such as burning skyscrapers or bridges.

Fearsome Fires Kids can learn a lot about fire by studying fire disasters. This activity suggests students use data base software to set up a data file on some of these. Be sure children do not overlook the most disastrous fire of all: the one that destroyed an entire city in 79 A.D. The city was Pompeii, and its fiery demise was caused by a volcano.

USING THE WORKSHEETS

This month's worksheets examine fire safety tools and precautions.

Fire Tools — This worksheet introduces primary grade children to five basic fire tools: a smoke alarm, fire extinguisher, fire hydrant, alarm, and hose. Take students on a "fire walk" in which you point out the nearest locations of these tools and discuss how they are used to fight fire. Then ask children to look at the Fire Tool Worksheet and find the hidden pictures of the five tools they just learned about. Here is a completed worksheet:

Fire Extinguishers — This worksheet acquaints intermediate students with the parts of a fire extinguisher and helps show them how to use this important fire tool. (You might also explain that fire extinguishers filled with water are for wood, paper, and cloth fires, while fire extinguishers filled with liquefied gas or chemical powder are for gas, grease, and electrical fires.) Try to have an actual fire extinguisher on hand so you can point out its parts and demonstrate its proper use before asking students to complete the worksheet.

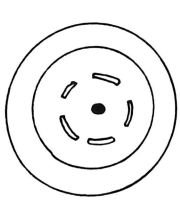
The worksheet answers are as follows: **Parts of a fire extinguisher:** 1. Operating Lever; 2. Locking Pin; 3. Handle; 4. Air Pressure Gauge; 5. Instruction Panel; 6. Hose; 7. Nozzle. **How to work a fire extinguisher:** Step One: Pull locking pin; Step Two: Aim nozzle at base of fire; Step Three: Squeeze lever.

Family Sharing Page — Send this fire safety checklist home with students of all ages. It is designed for parents and children to review together.

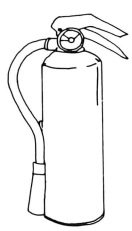
NAME: _____

FIRE TOOLS

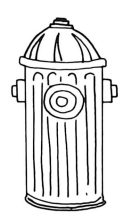
DIRECTIONS: Can you find these fire tools in the large picture below? Put a ring around each hidden picture.



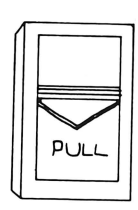
Smoke Alarm



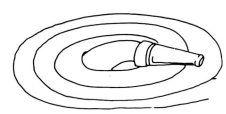
Extinguisher



Hydrant



Fire Alarm



Hose

COPY

TAKE HOME

WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

NAME: _____

FAMILY SHARING PAGE

DEAR FAMILY: We are studying fire prevention in school. Your child has learned that it is important to practice fire safety measures. You may wish to review this list with your child to ensure that your home is fire-safe.

CHECKLIST FOR FIRE SAFETY

☐ 1. Smoke detectors are installed and work.

☐ 2. Windows and doors at all exits can be opened easily.

☐ 3. There are no piles of soiled rags in the kitchen, garage, or basement.

☐ 4. There are rope ladders in upstairs bedrooms, in case a family member must climb from a window.

☐ 5. We have a place to meet outside if there is a fire inside our home.

☐ 6. We have had a fire drill or have planned one.

☐ 7. Family members have practiced dialing the fire department and reporting a fire.

COPY

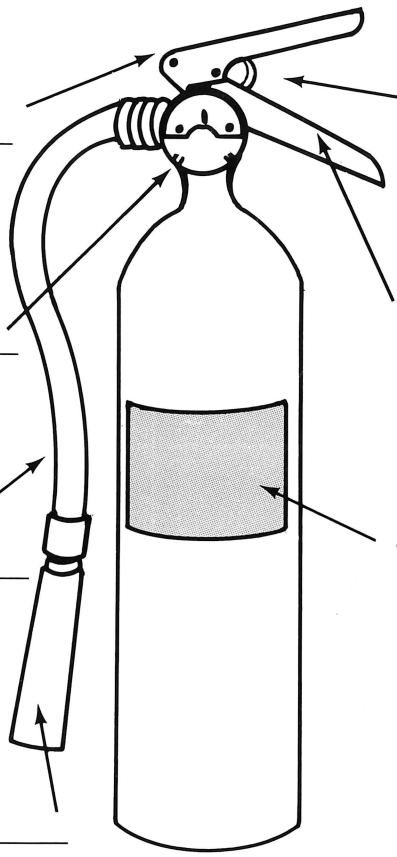
INTERMEDIATE

WORKSHEET TO COPY AND USE WITH THIS MONTH'S POSTER

NAME: _____

FIRE EXTINGUISHERS

DIRECTIONS: Label the parts of a fire extinguisher.



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

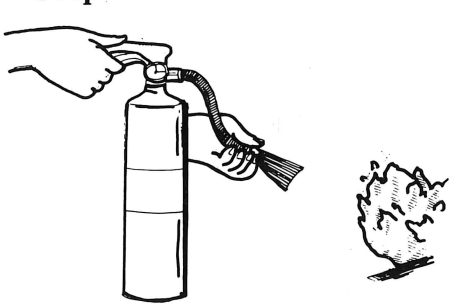
WORD LIST

- Operating Lever
- Hose
- Nozzle
- Instruction Panel
- Air Pressure Gauge
- Handle
- Locking Pin

DIRECTIONS: Ask your teacher to show you how to work a fire extinguisher. Then label the steps below in the right order.

How to Work An Extinguisher:

Step _____

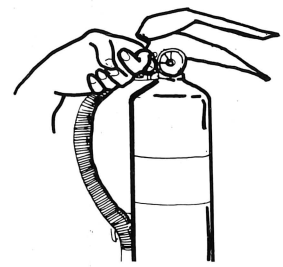


Aim nozzle at base of fire.

Step _____

Squeeze lever.

Step _____



Pull locking pin.

(continued from page 30)

ing or not knowing affect the messages that they wrote?

Don't be surprised if this project leads to new classroom friendships. It should also help to spark your students' curiosity about online communication.

2. THE INFORMATION LINES

This project will help students get an idea of what is involved in online research.

Preparation: You will need a large outline map of the United States which can be spread out on your classroom floor, the playground, or another suitable area; two boxes — one large and one small; twelve pieces of string; and plenty of 3 X 5 cards, with a hole punched near the top of each one.

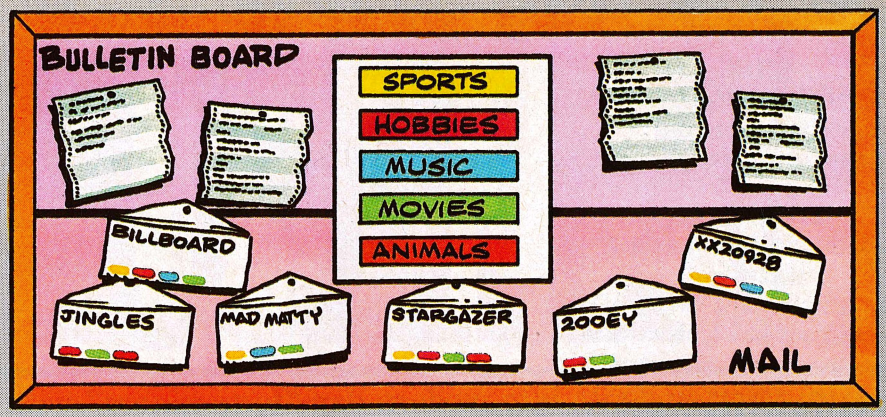
Activity: Begin by having each child in your classroom select a topic to research. (Popular topics might include dinosaurs, pets, the martial arts, Indians, race cars, or ghosts — the bigger the variety of topics, the better.)

Distribute five 3 X 5 cards to each student, and have each child research five facts about the topic that he or she has selected. Each student should record one fact on one side of each card and the name of his or her topic on the other side.

When all the cards have been prepared, make a master list, or *menu* of all the topics that you now have fact cards about. Spread your map out on the floor or playground, and place the boxes on the map approximately where your home state is located. Assign two children to sit in, or near, the two boxes and have these two decide between themselves which one will play the computer, and which will be the *modem* — the device that helps the computer send messages and information to far-away places.

Next, assign twelve children to be "sources of information," or online data bases. Divide the reference cards randomly among these students, and have them stand at various points about the map. Assign one piece of string to each of the twelve students, and give the other ends of the string to the student playing the role of the modem.

The remainder of your students will act as researchers using the online system. Hand a copy of the menu to each user, and have each choose a topic from the menu to "research." One-by-one, have these students approach the computer and the modem and say "Computer: I would like to find out about. . .," and then name the selected topic. Each information source must look through the 3 X 5 cards that he or she is holding, and pull out the cards related to that topic. These children then slide the appropriate cards down the string to the modem. The modem hands the cards to the computer who, in turn, will hand them to the researcher. Have the researcher read the fact cards aloud, then send them back to the original information sources. Repeat this activity a number of times, until each child has had a turn at each task.



Kids compare interests on a Message Center bulletin board.

Discussion: In order to receive the information, point out to students, the researcher stood at one point, and yet received information from many different places. Since the children did the original research themselves, they should appreciate how quickly the "computer" was able to do the same job. As in the last activity, discuss with students the ways in which this simulation is similar and different from actual online data transmission.

3. SOFTWARE SAMPLER

Here are some current software packages that teach about telecommunications.

The Information Connection. For Apple IIe, IIc, and IBM/compatibles ($59.95); Commodore 64 ($39.95). Instruction and practice in telecommunications techniques, as well as software that you can actually use to go online. Contact: Grolier Electronic Publishing, Inc., Sherman Tnpke., Danbury, CT 06816; 800/858-8858.

Electronic Mailbag: An Electronic Mail Simulator. For Apple II family and IBM/compatibles. $49.95. An extensive simulation of an "E-mail" system, the program can handle up to 100 students easily, and more, with additional data disks. Contact: Exsym, 7016 Dellwood Rd. N.E., Albuquerque, NM 87110; 505/881-3670.

Window on Telecommunications. For Apple II family and soon to be available for IBM/compatibles. $79.95. A tutorial that students can use independently to learn concepts and terms associated with online computing. Contact: Exsym, 7016 Dellwood Rd. N.E., Albuquerque, NM 87110; 505/881-3670.

The Electronic Village. For Apple II family and IBM/compatibles. $79.95. This program simulates an actual message system environment. Students "log-on," "leave," and "retrieve" messages. Contact: Exsym, 7016 Dellwood Rd. N.E., Albuquerque, NM 87110; 505/881-3670.

Ethics: On-line! For Apple II family. $24.95. The package includes curriculum materials, and a disk that provides topics for classroom discussion. Contact: Exsym, 7016 Dellwood Rd. N.E., Albuquerque, NM 87110; 505/881-3670.

Kidmail. For Apple II series. $10. A program that simulates an electronic mail system. Teachers have been known to exchange *Kidmail* disks by mail, giving the program an even higher simulation value. Contact: CUE Softswap, P.O. Box 271704, Concord, CA 94527-1704; 415/685-7265.

CALIFORNIA

Turn your students into modern day "forty-niners" with this ready-to-use lesson plan, a spreadsheet program, and a little imagination.

The California gold rush of 1849 brought thousands of fortune-seekers to the west coast. They got there any way they could, including on foot or in covered wagons. In this unit, students will pretend to be modern-day "forty-niners" traveling to San Francisco, and will use a spreadsheet to compare travel times required by different modes of transportation.

Start a discussion of the California gold rush by telling the story of James Marshall and the first discovery of gold. Marshall spotted some yellow stones in a stream near the mill where he worked and picked them up. He showed them to his employer, John Sutter. The men tested the pebbles and found they were gold! Marshall and Sutter tried to keep their discovery a secret, but someone found out and spread the word in San Francisco. Soon thousands of people were rushing to California to look for gold. This took place in 1849, which is why gold-seekers are sometimes called "forty-niners." Many other people came to California and set up businesses to sell supplies to the miners. Most of these people stayed in California and helped contribute to the growth of the young American west.

Ask children to imagine that they are living in New York when they hear about a new gold rush. Do they want to go to California to seek their fortunes? Have them brainstorm all the different ways they could travel across the continent, including modern ways and those used by the original forty-niners. Then tell them that the computer will help them weigh the advantages and disadvantages of these different ways to travel.

PREPARATION

The activities in this lesson are designed for use with the *AppleWorks* spreadsheet program, published by Apple Computer, but can be adapted for other spreadsheet programs. Most adaptations will involve changes in spreadsheet formulas and formats.

Type in and save the California or Bust! template (page 51) using your spreadsheet software. Run through the lesson in advance to make sure the template is set up properly.

Certain columns, such as KILOMETER, KPH, HOURS, and MINUTES, work best as whole numbers. There are several ways to have the spreadsheet do this. With *AppleWorks,* students can write a formula to express only the whole number portion of the answer (see "Completing the Worksheet," page 50). If your students are not ready for this kind of math, you can format the spreadsheet to ignore any numbers after a decimal point when you are setting up the template (see the "formatting" section of your user's manual). Some programs other than *AppleWorks* (such as *EduCalc,* published by Grolier, Sherman Turnpike, Danbury, CT 06816) automatically express values as whole numbers. Check your user's manual.

Before beginning this lesson, students should be familiar with your electronic spreadsheet. They should be able to define *spreadsheet, rows, columns, cells, labels,* and *formulas.* They should know how a spreadsheet is formatted and designed, and how the rows, columns, and cells relate. They should also know how to write simple spreadsheet formulas involving addition (+), subtraction (-), multiplication (*), and division (/).

(continued)

Ned Shaw

OR BUST!

Curriculum Connections

MATH
**Problem solving*
**Metric conversion*
**Speed/distance/time equations*

SOCIAL STUDIES
**American history: westward expansion*
**Geography of the United States*
**Map reading and route planning*

BY SHIELA DYER
AND KRISTAN MEYER

If you are unfamiliar with these spreadsheet concepts, see the box entitled "Spreadsheet Primer," page 52, for a general introduction.

PRECOMPUTER ACTIVITIES

Divide the class into seven groups and hand out one copy of the California or Bust! Worksheet (on page 52) to each group. Explain that the worksheet is set up like a computer spreadsheet; the groups will use the worksheets to work out formulas that they will later input into the computer. Tell students that their goal is to find out how long it will take each form of transportation listed on the worksheet to reach San Francisco from New York.

Direct students' attention to Row 3 on the worksheet. Explain any headings they don't understand (MPH = miles per hour; KPH = kilometers per hour; and MILES/DAY = the average number of miles covered during one day). Point out the KILOMETER and KPH columns, and tell students that the spreadsheet will be able to help them with metric conversions.

Ask students what basic information they need to supply so they can figure out the time spent travelling for each mode of transportation. (This is a good time to remind students of the formula needed to solve such problems, which is *distance divided by speed equals time.*) They should be able to tell you that they need to supply the speed at which each vehicle travels (MPH or KPH) and the total distance from New York to San Francisco (MILES or KILOMETER).

Assign each group one mode of transportation, and tell the students in that group to imagine that they're using that mode of transportation to get to San Francisco to seek their fortunes. Their first task is to determine the number of miles they have to travel from New York to San Francisco, and an average speed for their mode of transportation. The approximate figures are shown in the sample spreadsheets on the next page. Depending on your library resources and the ability level of your students, you could either provide these figures directly (see the completed worksheet, next page), or challenge the groups to find their own figures through creative research. In the case of ground transportation, for example, mileage can be found using a good atlas and tracing possible routes. Students can also contact Amtrak, any transcontinental airline, travel agents, the Automobile Association of America, bicycle touring organizations, walking organizations, or historical societies for mileage figures. These sources may also be able to supply the average speed of each craft. The figures your groups come up with will vary depending upon sources consulted and routes followed.

COMPLETING THE WORKSHEET

When each group has its mileage and speed figures, reconvene as a class to fill in the worksheet. Ask the following questions, and as each column of the spreadsheet is discussed, have group members work together to fill in the cells that apply to their form of transportation.

DISTANCE: Which columns should contain the figures dealing with distance? *(B, C.)* In which cell should the car group enter the mileage for its trip? *(B5.)* Which cell should the train group fill in? *(B6.)*

Look at the KILOMETER column. If we already know the number of miles from New York to San Francisco, how do we find the number of kilometers? *(Multiply the miles times 1.6.)* How would we write a formula for the spreadsheet to convert miles to kilometers for the car? *(B5*1.6.)* In which cell should the plane group record this information? *(C7.)*

SPEED: In which columns will we write the information that applies to speed? *(D, E.)* In which cell should the ship group write its miles per hour information? *(D8.)*

Look at the KPH column. How could we use the information we have so far to find kilometers per hour? *(Multiply the miles per hour times 1.6.)* What would the spreadsheet formula be for the ship? *(D8*1.6.)* What cell holds this formula? *(E8.)* (Note: The figure for the ship is given in statute miles. If you wish to add a column to convert to nautical miles, the formula would be *statute miles/1.15.*)

TIME: Now that we have entered the distance and speed information, we are ready to compute the amount of time each trip will take.

Look at column F, which records the number of hours each trip will take. What formula do we need to know to find this information? *(Distance divided by speed equals time.)* What would the formula be to find the *total* number of hours it would take the bike to reach San Francisco? *(B9/D9.)*

Most of the time this equation will not yield a whole number, but will present the answer as a decimal (5.22, for example). The decimal portion represents fractions of an hour, or minutes. Since minutes will be expressed in column G, the fractional part of B9/D9 does not need to be expressed in column F. How can we write an equation asking for only the whole number, or integer, portion of the answer? (@INT(B9/D9).)

What would be the first step in writing an equation to convert the decimal portion of the hours equation into minutes? *(Subtract the whole number part from the decimal part.)* What would be the spreadsheet formula that would do this for the bike? *(B9/D9-@INT(B9/D9).)* Since the decimal part of the number is still expressed in hours, how would it be converted to minutes? *(Multiply it by 60.)* What would the whole formula be? *(D9/B9-@INT(D9/B9)*60.)*

Now look at column H. This is the DAYS column. What is the most direct way to find out how many *days* (including fractions of days) the trip will take? *(Go back to the original formula for total hours — distance divided by speed — and divide by the number of hours in a day.)* What would this formula be for the covered wagon? *((B11/D11)/24.)*

The last column, I, computes how many miles each method covers in a day. How do we find this information? *(Divide the number of miles covered by the number of days the trip would take.)* What is the spreadsheet formula for the foot group? *(B10/H10.)*

ON THE COMPUTER

When each group has written in the formulas in the appropriate row on the worksheet, boot up your spreadsheet template. Have one member of each group come to the computer and enter the information for the group. Have the rest of the group watch and check for correct entry. As each cell is filled in, *AppleWorks* will automatically calculate the values. When the spreadsheet is complete, save it on your disk and print out a copy.

DISCUSSING THE ACTIVITY

Hand out a copy of the completed spreadsheet to each student. How did their form of transportation stack up against the others in terms of travel time?

Discuss the advantages and disadvantages of each form of transportation. Which methods do students think are the most expensive? The least? Which forms would allow students to take the most mining equipment along with them?

Have each group write a report about its "trip" to California. The report should include highlights of each state passed through, any possible hardships encountered, and a map of the route followed. Students in the covered wagon group will have to imagine the United States as it was in 1849, or they could even imagine what it would be like to travel by covered wagon in 1987!

EXTENSION ACTIVITIES

Encourage students to experiment with the spreadsheet on the computer screen by changing some of the values. For example, change the number of hours in a day from 24 to eight — a more realistic travel day for most modes of transportation. Which columns are affected? *(H, I.)* Or suppose that the speed limit for the car was raised to 60. Which cells would be affected? *(D, E, F, G, H, I.)*

Have students create a spreadsheet to track the cost of each trip. The costs for the car trip could include gas, lodging, food, repairs, tolls, and so on. Since students already know the mileage and length of time of the trip, they should be able to project the trip's total cost. ■

Sheila Dyer developed the concept for this article during a six-month workshop for practicing and aspiring teachers at the University of Alaska-Juneau. Her material originally appeared in *Classroom Spreadsheet Activities*, a compilation of workshop projects. *Teaching and Computers* Associate Editor ***Kristan Meyer*** adapted this article for *T&C*. Special thanks to ***Jason Ohler***, Director of Educational Technology at the University of Alaska-Juneau, and editor of *Classroom Spreadsheet Activities*.

For more information about how to obtain the manual of workshop projects and accompanying diskette of activity files, write: Classroom Spreadsheet Activities, *The Educational Technology Program, University of Alaska-Juneau, 11120 Glacier Highway, Juneau, AK 99801; 907/789-4427.*

SAMPLE TEMPLATE

	A	B	C	D	E	F	G	H	I
1	CALIFORNIA OR BUST!								
2		DISTANCE		SPEED		TIME			
3	MODE	MILES	KILOMETER	MPH	KPH	HOURS	MIN	DAYS	MILES/DAY
4									
5	CAR								
6	TRAIN								
7	PLANE								
8	SHIP								
9	BIKE								
10	FOOT								
11	WAGON								

The sample template above was created using AppleWorks *software. You should run through the lesson in advance to make sure your column widths are sufficient.*

COMPLETED TEMPLATE

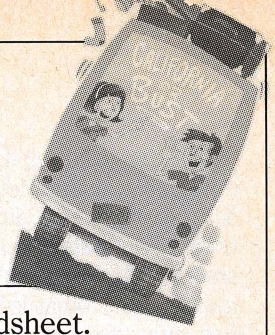
	A	B	C	D	E	F	G	H	I
1	CALIFORNIA OR BUST!								
2		DISTANCE		SPEED		TIME			
3	MODE	MILES	KILOMETER	MPH	KPH	HOURS	MIN	DAYS	MILES/DAY
4									
5	CAR	2930	4688	55.0	88	53	16	2.22	1320
6	TRAIN	3169	5070	60.0	96	52	49	2.20	1440
7	PLANE	2572	4115	496.0	794	5	11	.22	11904
8	SHIP	6047	9675	23.0	37	262	55	10.95	552
9	BIKE	3000	4800	15.0	24	200	0	8.33	360
10	FOOT	3000	4800	2.5	4	1200	0	50.00	60
11	WAGON	3000	5400	2.0	3	1500	0	62.50	48

When students have entered in their speed and mileage figures, and formulas, the finished spreadsheet will allow them to compare travel statistics.

	A	B	C	D	E	F	G	H	I
1	CALIFORNIA OR BUST!								
2		DISTANCE		SPEED		TIME			
3	MODE	MILES	KILOMETER	MPH	KPH	HOURS	MINUTES	DAYS	MILES/DAY
4									
5	CAR	2930	(B5*1.6)	55	(D5*1.6)	@INT(B5/D5)	(B5/D5-@INT(B5/D5)*60)	(B5/D5)/24	(B5/H5)
6	TRAIN	3169	(B6*1.6)	60	(D6*1.6)	@INT(B6/D6)	(B6/D6-@INT(B6/D6)*60)	(B6/D6)/24	(B6/H6)
7	PLANE	2572	(B7*1.6)	496	(D7*1.6)	@INT(B7/D7)	(B7/D7-@INT(B7/D7)*60)	(B7/D7)/24	(B7/H7)
8	SHIP	6047	(B8*1.6)	23	(D8*1.6)	@INT(B8/D8)	(B8/D8-@INT(B8/D8)*60)	(B8/D8)/24	(B8/H8)
9	BIKE	3000	(B9*1.6)	15	(D9*1.6)	@INT(B9/D9)	(B9/D9-@INT(B9/D9)*60)	(B9/D9)/24	(B9/H9)
10	FOOT	3000	(B10*1.6)	2.5	(D10*1.6)	@INT(B10/D10)	(B10/D10-@INT(B10/D10)*60)	(B10/D10)/24	(B10/H10)
11	WAGON	3000	(B11*1.6)	2	(D11*1.6)	@INT(B11/D11)	(B11/D11-@INT(B11/D11)*60)	(B11/D11)/24	(B11/H11)

Using the AppleWorks *"zoom" function (open apple-Z), you can print out a copy of the spreadsheet that shows each formula.*

CALIFORNIA OR BUST WORKSHEET



NAME:_____ DATE: _____

Directions: Your teacher will show you how to complete this spreadsheet.

	A	B	C	D	E	F	G	H	I
1	CALIFORNIA OR BUST								
2			DISTANCE		SPEED		TIME		
3	MODE	MILES	KILOMETER	MPH	KPH	HOURS	MINUTES	DAYS	MILES/DAY
4									
5	CAR								
6	TRAIN								
7	PLANE								
8	SHIP								
9	BIKE								
10	FOOT								
11	WAGON								

SPREADSHEET PRIMER

A spreadsheet is a table of information organized into rows and columns (see illustration). It is useful for calculating numbers and interpreting information. A spreadsheet can be drawn on paper or created on a computer using a software program designed for this purpose. A computerized spreadsheet is more efficient than a paper spreadsheet because it can do all calculations automatically, and because it allows you to move, erase, and insert characters easily.

In a spreadsheet, each intersection of a row and column forms a *cell.* Cells are identified by letter and/or number coordinates, such as A1 or 2,2. (The column number or letter generally comes first; the row number or letter, second.)

Each cell holds one piece of information. The information can be made up of either words (*labels),* numbers (*values*), or formulas.

The sample spreadsheet in Figure 1 keeps track of students' milk money. Cells A2 through A5 and cell B1 hold the labels SANDY, PETER, STEPHANIE, TOTAL, and AMOUNT. Cells B2 through B4 hold the values for the milk money paid ($.25, $.50, and $.00). Cell B5 holds the formula for totaling the milk money paid (B2 + B3 + B4). The formula tells the computer to add up the values in cells B2, B3, and B4. (In many spreadsheet programs, formulas are preceded by a symbol, such as a + sign or an = sign. Formulas may vary in other ways as well.)

As soon as the formula is entered, the computer makes the calculation and displays the result in cell B5. (See Figure 2).

If you change any of the values in cells B2, B3, or B4, the computer will automatically recalculate the total and display the new total in place of the old total in cell B5. For example, if Stephanie gives you $.50 for milk, you enter the amount in cell B4. The computer adds $.25, $.50, and $.50 to get the new total of $1.25.

Figure 1

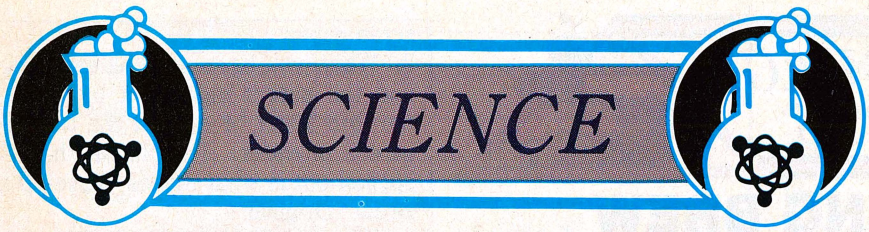
Milk Money Collection		
	A	B
1		AMOUNT
2	SANDY	0.25
3	PETER	0.50
4	STEPHANIE	0.00
5	TOTAL	B2 + B3 + B4

This simple spreadsheet keeps track of milk money from three students. The formula in cell B5 tells the computer to add the values in B2, B3, and B4.

Figure 2

Milk Money Collection		
	A	B
1		AMOUNT
2	SANDY	0.25
3	PETER	0.50
4	STEPHANIE	0.00
5	TOTAL	0.75

Once the formula is entered, the computer automatically makes the calculation and displays the answer (.75) in cell B5.



COMPUTER CAT CAPERS

Curriculum Objective:

Introduction to observation, description, and classification

Computer Skills:

Using graphics and text together; building and using a data file

Throughout history, cats have been objects of fear, affection, even worship. They've fascinated artists and scientists alike. Through the computer activities in this lesson, students will explore the many views of cats, both real and make believe.

I. Fantasy Felines

Preparation: Collect examples of imaginary cats in cartoons and story books. You'll also need your word processor plus an easy-to-use graphics program such as *Create with Garfield* (DLM) or *Creature Creator* (DesignWare); or a combined text and graphics program such as *KidWriter* (Spinnaker). Students should be familiar with the software you use.

Discussion: Pass around your fanciful cat collection, and give your students ample time to study the cartoons and story books. Then ask, if they were scientists with only these materials to use for research, what conclusions might they draw about cats? (Answers might include "Cats often wear human clothing, such as hats and boots" or "Cats like to play mean tricks on their owners.") Next, lead your class in brainstorming a list of other fanciful notions about cats (such as "Cats have nine lives" and "If a black cat crosses your path, you'll have bad luck"). Record these on the board.

Activity: Assign each student to create on the computer his or her own cartoon or story book cat (with an appropriately fanciful name) to illustrate one of these fanciful cat notions. Print out students' work and display it with your original collection under a heading, "Fanciful Felines."

II. Cats In Fact

Preparation: Your students will need access to one or more sets of encyclopedias, plus other reference books specifically dealing with felines. You will also need a data base management program to set up a Feline Fact File for your students to enter information into and use. Design a simple data record similar to the sample on this page; print out a blank record and photocopy it for your students to use as a worksheet.

The "Cat-alog" (below) lists members of the cat family found in most reference works. Copy this list on the board or a poster at the front of the room.

Activity: Divide the class into teams of two students each, then go over your "Cat-alog" of the feline family and have each team choose a cat to research. Hand out the worksheet and explain that each team should fill out one sheet for its chosen cat, using your classroom research resources. When the teams have completed their research, check their worksheets for accuracy and consistency, then have them take turns entering their data into the Feline Fact File. Students can then explore the file by searching and sorting it to answer such questions as: Are all cats *carnivores* (meat eaters)? In what countries are the largest and smallest cats found? Is there a connection between cat habitat and color?

When students are familiar with the Fact File, have each team print out its data record and draw a picture (by hand or with a computer graphics program) of the cat it describes. Urge students to pay careful attention to such details as coloring, size, and habitat. Older students might want to include a background silhouette of the continents on which their cats are found.

Display the team drawings and data records under the heading "Cats in Fact," near the display you created in part I of this lesson. Have students compare and contrast the real and fantasy felines. Which of the "fanciful notions" from part I do students now know not to be true? Are there other notions that may have had some basis in fact?

Martha J. Tompkins
Old Donation Center for the Talented and Gifted
Virginia Beach, VA

Cat Family Cat-alog

Bobcat	Domestic cat	Leopard	Panther
Caracal	Jaguar	Lion	Serval
Cheetah	Jaguarundi	Lynx	Snow Leopard
		Margay	Tiger
		Mountain Lion	Wildcat
		Ocelot	

SAMPLE DATA RECORD

FELINE FACTS DATA RECORD

YOUR NAME:
NAME (OF ANIMAL):
HABITAT (SURROUNDINGS):
SIZE:
FOOD:
COLOR (MARKINGS):
SPECIAL:

BEWITCHING BREW

Curriculum Objective:
Writing practice using vivid vocabulary words

Computer Skills:
Working with word processing files

Can a recipe be spooky? With the right ingredients, it can. In this language arts lesson, your students will stock up on vivid Halloween words, figure out the tricky Witches' Brew recipe you've stirred up for them on disk, and create their own creepy concoctions on the computer. Along the way they'll get plenty of practice in saving and retrieving word processing files.

Preparation: Use your word processor to create the GREETINGS file and ten brief data files below. Save the files on a separate disk labeled "Halloween."

Discussion: Ask your students to close their eyes and think of Halloween. What sights, sounds, smells, tastes, and feelings come to mind? Have students call out all of the words they associate with Halloween (verbs, adjectives, and adverbs as well as nouns), and list these on the board. When everyone has contributed, congratulate your students on providing excellent examples of *vivid* words. Because of their special meaning or the way they sound, vivid words are the ones writers choose when they want to be sure the reader gets the picture. Tell students that they will now see how vivid words like these can be used to cook up an unforgettable Halloween stew.

Activity: Tell your students that there is an Original Witches' Brew recipe on a disk called HALLOWEEN, but the recipe has a secret ingredient. Their job is to figure out what that secret ingredient is.

Divide your class into teams of two or three students each. One at a time, have each team go to the computer, retrieve the data file called GREETINGS, and follow the instructions given there. After all of the teams have discovered the secret ingredient, have them write goofy, gory Halloween recipes of their own, using the vivid word list on the board. Have each team type in and save its recipe under an original file name.

While your students are enjoying their toil and trouble, prepare an orange or white background for your bulletin board. Cut a large cauldron out of black paper, and staple it to the bulletin board along with the lettering, "Bewitching Brews." Have the teams print out their recipes and display them around the cauldron for classmates to (eek!) enjoy.

Beth Smith
Orono, ME

ORIGINAL WITCHES' BREW

Instructions Type in and save each of the following 11 files under its specified file name.

GREETINGS
Welcome, my little pretties, to Wexelina's Kitchen. I'm mixing up a truly nasty Halloween treat for you — but it won't be complete without one very special secret ingredient. You'll have to help me find it, dearies, by following these directions:

1. To learn the ingredients of this special brew, you must retrieve a number of files. The first file is called DOG. Each file will tell you what file to retrieve for the next ingredient.
2. As you retrieve each file, jot down the name of that file on a sheet of scrap paper.
3. When you have used all ten files, find the secret ingredient by taking the first letter of each of the ten file names in order. The phrase that is spelled out is what makes Wexelina's Brew "Original"!
4. When you've figured out this recipe, make up one of your own, using the word list on the board. Save your recipe under a really creepy new file name.

Happy Halloween!
— Wexelina.

DOG
3 tablespoons of dog's teeth, boiled long and slowly. Retrieve file IVY.

IVY
4 twigs of ivy, crushed and juicy. Retrieve RAT.

RAT
7 rat tails ground up fine. Retrieve TOES.

TOES
12 toes of an ancient wizard, chopped fine. Retrieve YELLOW.

YELLOW
2 yellow moonbeams shut in a tight jar. Retrieve SNAKE.

SNAKE
4 cups snake's skin, coarsely chopped. Retrieve OWL.

OWL
1/2 cup owl's beak, grated fine. Retrieve CAT.

CAT
3 cat's hairs, whole. Retrieve KANGAROO.

KANGAROO
5 kangaroo's toenails, mashed. Retrieve STEW.

STEW
Simmer this mixture well for five hours. To find out the magic ingredient, take the first letter of all ten file names (not counting GREETINGS) in order. The magic ingredient that makes this the Original Witches' Brew is: _____ _____!

TEACHING and computers

October 1987
(Expires February 1)

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c. ☐ Greater than $20,000

3. Which computer system do you or your district/college use for administrative purposes:

a. ☐ IBM/MS-DOS Compatible
b. ☐ Apple II Series
c. ☐ Macintosh

1	2	3	4	5	6
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43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100	101	102
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109	110	111	112	113	114
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133	134	135	136	137	138
139	140	141	142	143	144
145	146	147	148	149	150

TEACHING and computers

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31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100	101	102
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127	128	129	130	131	132
133	134	135	136	137	138
139	140	141	142	143	144
145	146	147	148	149	150

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Title/Responsibility_____

School/Institution_____

Address_____

City_____ State_____ Zip Code_____

Phone ( )_____

Please check an entry for each category.

1. Do you (or your district/college) plan to purchase Printers and Plotters in the coming year?

☐ Yes
☐ No

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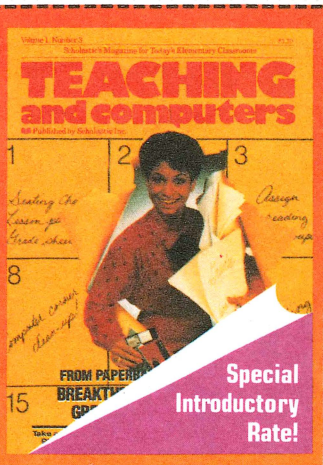
a. ☐ IBM/MS-DOS Compatible
b. ☐ Apple II Series
c. ☐ Macintosh

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100	101	102
103	104	105	106	107	108
109	110	111	112	113	114
115	116	117	118	119	120
121	122	123	124	125	126
127	128	129	130	131	132
133	134	135	136	137	138
139	140	141	142	143	144
145	146	147	148	149	150

Isn't it time you got your *own copy each month?*



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COMPUTER CHALLENGES

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SOCIAL STUDIES

Special Columbus Day Computer Challenges

SUPER SYMBOLS

Have students locate a picture of Christopher Columbus's coat of arms in a reference book. The one basic symbol in the picture is a group of islands that represent Columbus's discovery of North America. What other symbols could Columbus have had in his coat of arms? Tell children to use a drawing program such as *Creativity Unlimited* (Sunburst), or any Logo program, to design their own coat of arms for Columbus.

FACT FILE

How many of these facts about Christopher Columbus's voyages do your students know?

- Columbus was not trying to prove that the world was "round," as so often has been said. He didn't have to. Most educated people of the time knew that. Columbus was simply trying to find a shorter sea route to the Indies.
- The first sailor to spot land in North America was Juan Rodriguez Bermejo. He was sailing on the *Pinta* when he first saw shoreline at 2 a.m. on October 12, 1492.
- The native people who first greeted Columbus and his sailors were the Arawak Indians. At the time, some of them were wearing beads of stringed popcorn.

Use a word processing program to set up a file called COLUMBUS. For five school days, challenge students to add new and unusual facts about Columbus's voyages to the file. Can the class reach 125 different facts by the fifth day?

Finally, ask a group of students to use the MOVE command of your word processor to organize the facts in approximate order of occurrence. The result will be a fairly in-depth history of Columbus's voyages!

— M.D.

FREE PRODUCT INFORMATION

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ABOUT SPELLING CHECKERS

Curriculum Objective:
Building spelling and word usage skills through writing practice

Computer Skills:
Using an electronic spelling checker

Contrary to the fears of many parents and teachers, using electronic spelling checkers (see list on next page) in the classroom need not undercut students' ability to spell. Spelling checkers do not automatically correct errors; instead, they match each word in a word processing document against a large dictionary stored on a data disk. Any words not found in the electronic dictionary are listed or highlighted and considered "suspect." It's then up to the student writer to identify and correct the misspelling, ask the spelling checker to suggest a spelling, or (in the case of proper nouns and idioms not in the disk dictionary) leave the word as is.

But that's not all spelling checkers can do. Here are some creative ways to use these new electronic tools in your language arts classroom.

I. Round Up The Suspects

Many spelling checkers offer the option of printing out all the words in a piece of writing which do not appear in the electronic dictionary (see sample list on the next page). Try these activities with your students' Suspect Lists.

Student Activity: Have students create their own Personal Word Banks using their printed lists of suspect words. Each student should start a word processing file with the letters A through Z entered vertically. He or she can then enter all of the *corrected* words from the suspect word lists. Periodically ask students to choose 10 or 15 words from their own list to study and be tested upon. After each test, students can move the words they spelled correctly to a separate "Master List" in the same word processing file.

Teacher Activity: Analyze students' suspect word lists for patterns in problem spelling and usage. You can then individualize your spelling lessons, targeting classroom instruction and practice where they can do the most good. You might also put together a data base of textbook and software references on specific topics to help focus resources where they are most needed. Students having trouble with the same spelling concepts can also be grouped for mini-lessons.

II. The Wildcard Match

"How can I look up a word I don't know how to spell?" is a common classroom plaint. The computerized dictionary makes searching for words easy enough to be creative.

Activity: Encourage students to try out new words while they write. If the writer is fairly certain how a new word should be spelled, she or he can type in the whole word and then use the spelling checker to be sure. If the writer has only a vague idea of the spelling, the word can be entered with "wildcard" characters (which vary by program, and may include asterisks, ellipses, or question marks) substituting for the letters not known. For example, a student who wants to use the word "challenge" might be fairly sure that it has two *l*s, but can't tell whether the last sound is made by a *g* or a *j*. If the student types CHALLEN?E, the electronic dictionary will list any and all words which could possibly match. The student must then select the intended word.

Activity: Your student-poets can find rhyming words by using the wildcard notation which will match any number of letters or none at all. (The exact notation will vary among programs.) For example, to find all words in the electronic dictionary that end in "at," the student might type in "=at". The dictionary search would automatically produce a list of words to choose from.

Activity: Encourage your students to become "scientists of spelling," learning spelling rules through discovery. They can look for common patterns among words (such as *i before e except after c)*, formulate hypotheses, and check them out through wildcard searches.

III. High Frequency

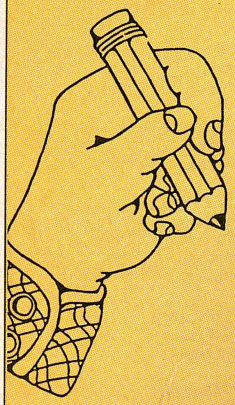
Several of the more popular spelling checkers will provide an alphabetical list of all the words used in a piece of writing and how many times each word was used. This type of word frequency list can be used in several ways to help improve students' writing.

Activity: Have students check their frequency lists for overused words that can make their writing monotonous. When they have circled these repeaters, students can use a thesaurus to replace some of the words with synonyms.

Activity: Dull and general words are those that lack specific sparkle; "nice" and "car" might serve as examples. Go over the word frequency lists with students and help identify these potential doldrums. Student writers can then either replace these with more meaningful words or upgrade them by inserting adjectives.

Activity: Adjectives and adverbs tend to be absent from student first drafts. Have kids circle all the "de-

WORD FREQUENCY



(3)	A	(1)	ABOUT
(2)	ALL	(1)	ALONG
(8)	AND	(1)	ANYTHING
(2)	ARE	(1)	ATVENTURE
(1)	BAG	(1)	BEAFORE
(1)	BEFORE	(8)	BIG
(1)	BOY	(1)	BRING
(4)	CAN	(1)	CARE
(6)	DAD	(1)	DECIDDED
(2)	DO	(1)	DON'T
(1)	EARLI	(1)	GAME
(1)	GOING	(1)	GO
(5)	HE	(1)	HAPPY
(1)	HAVE	(2)	HIM
(1)	HOWEVER	(3)	IS
(12)	I	(3)	IN
(3)	K	(1)	LEAVVING
(4)	MY	(2)	ME
(1)	MAKES	(1)	NIGHT
(1)	NITE	(1)	NOISSES
(1)	NOON	(2)	NOT
(3)	O	(1)	OF
(2)	ON	(1)	OUR
(1)	PUPPY	(1)	RIVERS
(12)	SAID	(2)	SEE
(1)	SHOULD	(1)	SLEAPING
(2)	SLEEP	(1)	SO
(1)	STAY	(1)	STUFF
(1)	T	(3)	TAKE
(2)	TENT	(1)	THEN
(4)	THE	(1)	THANKS
(1)	THAT	(1)	THINKING
(3)	THINK	(4)	TO
(1)	TOO	(1)	TRIPE
(1)	US	(1)	V
(7)	WE	(1)	WAS
(1)	WENT	(1)	WERE
(1)	WHEN	(1)	WHY
(2)	WHAT	(3)	WITH
(1)	WILL	(1)	WOULD
(3)	YOU		

SUSPECT WORDS

(1)	ATVENTURE	(1)	BEAFORE
(1)	DDECIDDED	(1)	EARLI
(1)	LEAVVING	(1)	NITE
(1)	NOISSES	(1)	PUPPY
(1)	SLEAPING	(1)	TRIPE

With a spelling checker, your students can analyze their writing word-by-word (top), or zero in on instances of "iffy" spelling (bottom).

scribing" words that appear on their frequency list, and put check marks by any other words (such as the dull or general words identified in the exercise above) that might need a descriptive boost. They can then use the list, a thesaurus, and the word processor to enliven their writing as needed.

Activity: "To be" verbs can indicate use of the passive voice. Have students compare the number of "to be" formulations on their frequency list with the number of more active verbs. Students should then use the spelling checker's FIND function to locate each use of "to be" and decide, in each case, whether a more active voice would be appropriate.

Bernajean Porter
Educational Technology Consultant
State of Colorado
Denver, CO

POPULAR SPELLING CHECKERS In Elementary Classrooms

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RHYME TIME

Poetic inspiration lurks in the least likely places. Challenge kids to find it by thinking of an object in their bedroom closet. They should then draw a large outline of this object on a blank acetate overhead projector sheet, and place the sheet over a computer screen. Have kids boot up any word processing program and put the cursor inside the top left corner of the outline. They should write in rhyme about this object, making their writing fill the shape of the outline. Have them print out the final writing product: shapely poems! ***— Mary Dalheim***

LIBRARY SKILLS

BEST BOOKS DATA BASE

Curriculum Objective:
Learning to use the card catalog

Computer Skills:
Creating and using a data file

Could your students find their favorite books — or books on their favorite subjects — in the library card catalog? This data base project will reinforce library skills and encourage exploratory reading.

Preparation: Set up a simple data file to include the following information on each book: title, author, subject, fiction/nonfiction, call number, number of pages, availablity in school or public library, student's name, and comments (see sample record at right). Print out one blank record and photocopy it for discussion and student use.

Discussion: The first place to look for a good book, tell students, is in the card catalog of the school or public library.

Explain that there are three ways to look up a book in the card catalog: by subject, by title, and by author. Each of these types of cards is listed alphabetically in the card catalog. Review with your students the special rules applying to title cards (such as dropping *The, An,* and *A,* and spelling out numbers and abbreviations) and author cards for names that begin with *Mc* (they're filed as though they begin with *Mac*).

Each card in the card catalog, tell students, provides all the information needed to find that book on the shelf. If the book is *fiction* — a made up story — it will be kept together with all the other fiction books in alphabetical order by author's last name. If it is *nonfiction* — not made up, but a record of the facts — it will be shelved according to the Dewey Decimal System of Classification, which divides all nonfiction books into 10 categories. Each nonfiction book is given a *call number* based on its category, so that all nonfiction books about the same subject will be kept on the shelf together. To help your students grasp the Dewey Decimal concept, hand out a copy of the bookmark shown at right. Discuss the 10 subject areas and their corresponding numbers.

Next, pass out the blank data record sheet, and tell students that they will be setting up a card catalog

CHILDREN'S BOOKS
(Blank Record)

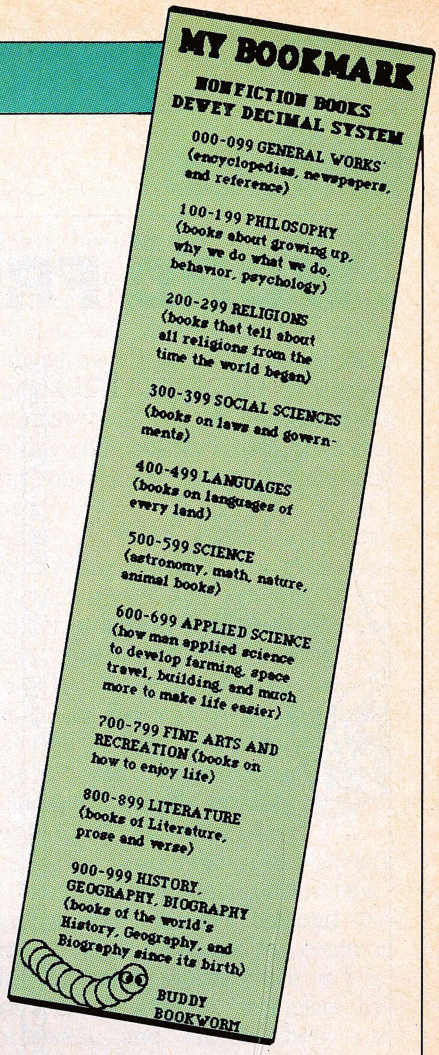
Title of book:
Author:
Subject
Fiction (Y/N):
Non-fiction (Y/N): Number:
Number of pages in the book:
Available in the School Library? (Y/N):
Available in Public Library? (Y/N):
Recommend book to others? (Y/N):
Your Name:

CHILDREN'S BOOKS
(Completed Record)

Title of book: The Dinosaur Encyclopedia
Author: Benton, Michael Dr.
Subject: Dinosaurs
Fiction (Y/N): N
Non-fiction (Y/N): Y Number: YPL 567.19
Number of pages in the book: Not given on index card
Available in the School Library? (Y/N): Y
Available in Public Library? (Y/N): Y
Recommend book to others? (Y/N): Y
Your Name: Emily Buermann

Kids keep track of popular books with their own electronic card catalog.

of their favorite books — on the classroom computer! Use a popular children's book to review with your students how to fill out the data record. Remind students that a call number is required for nonfiction books; a book of fiction does not have a call number, so they should ignore that field on their record sheet. If the call number for a nonfiction book includes a "J" (for juvenile) or "YPL" (for Young People's Library), tell students to include these letters on their data records as well.



A mini-guide to the Dewey Decimals.

Activity: Assign students to locate in the library at least two books they have read or would like to read, and to fill out a paper and pencil data record for each book. Have them check each other's work, then take turns at the computer entering the information into the data file. When this initial data has been entered, your students can practice retrieving records by author, subject, fiction/nonfiction, and location. Students may also want to print out their own books' records and post them on a bulletin board with an illustration. Encourage students to continue adding to and using your "electronic card catalog" data file all year long.

Laura C. Bullock
Peoria, IL ■

It took the #1 educational publisher to create

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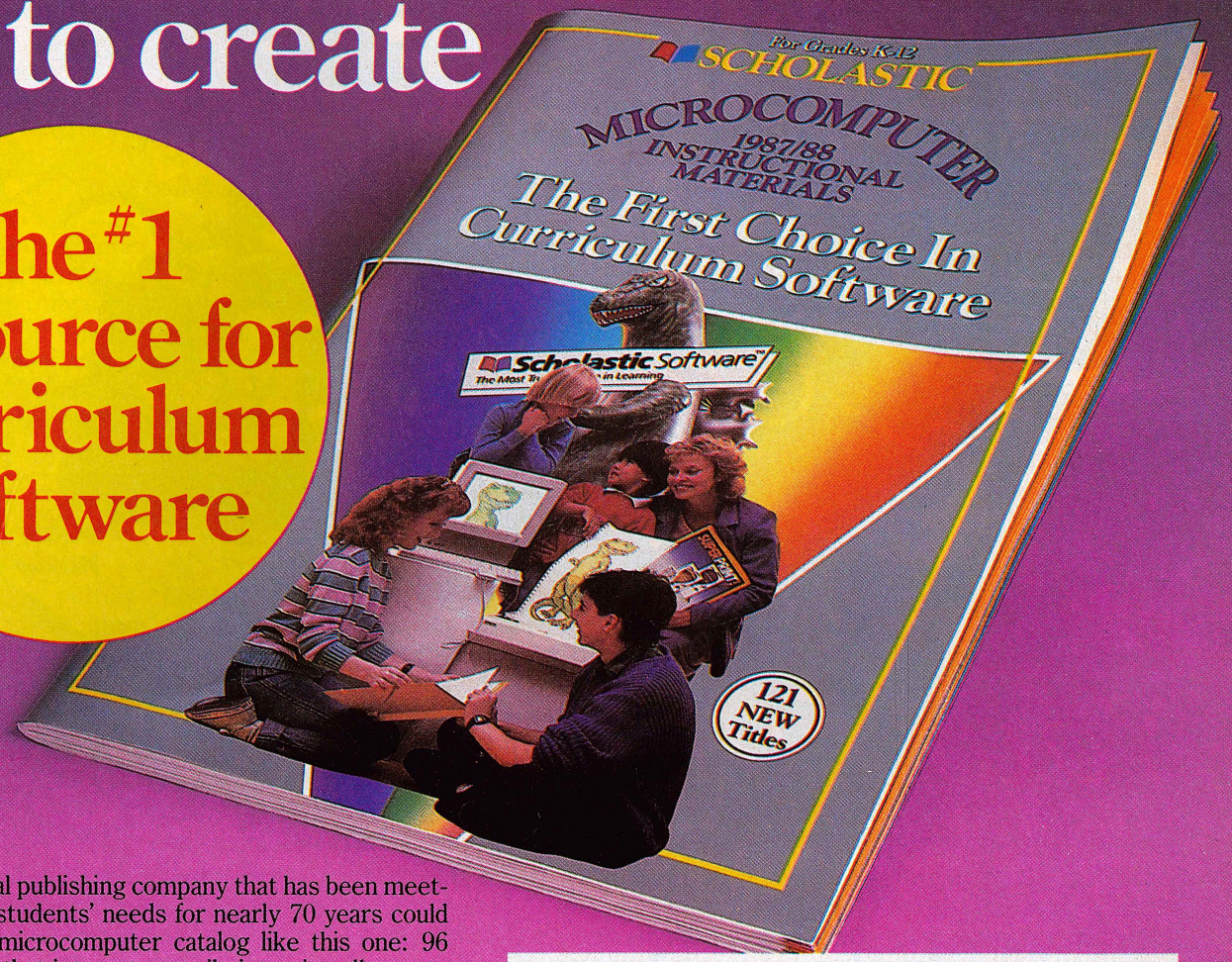

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This October is a time to expand your horizons. Teachers, students and parents are joining with schools, libraries, museums and retailers across the nation with computer fairs, special programs, contests and prizes (including free software and complete computer workstations for both winners and their schools!)

Share in the excitement.

There are events for everyone, even if you don't know anything about computers. Ask for your free booklet, *Everything you need to know (but were afraid to ask your kids) about computer learning.** And ask your school how they're celebrating Computer Learning Month.

COMPUTER LEARNING MONTH

OCTOBER '87

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Letters on the Keyboard

BY TRISHA AINSA

Now that they've been introduced to the classroom computer, your students are probably eager to *use* this new educational tool. To do so, they'll need to be able to recognize and locate letters on the computer keyboard. If your children are just learning about letters or need to review them, the computer and classroom activities in this column will help them with both letter concepts and using the keyboard on the computer. The activities also tie in with this month's holiday celebrations of Columbus Day and Halloween.

A COLUMBUS DAY DISCOVERY BOOK

Children enjoy putting together their own books as much as they enjoy making up their own stories. With this activity, children will "discover" the letters in their names on the keyboard, and will make a book about Christopher Columbus and discovery in general to take home and share with their parents.

Materials needed: Five sheets of white paper per child, your classroom computer (with a word processing program booted up) and printer, printer paper, scissors, glue or nontoxic paste, crayons.

Activity: Tell children the story of Christopher Columbus and his "discovery" of America. If you have a map or world globe, show the children the places that are mentioned in the story.

Tell the children that they are going to make a book titled "Discoveries." To make the book, they will have to start with a cover page. Using your computer and word processing program, type in all caps the title of the book "DISCOVERIES" so that it will print on the upper half of the paper. Skip several lines and type in caps BY, leaving enough room for a child's name. Call the first child to the computer and help her or him find and type in the letters for her or his name. Print out the cover, and give it to the child to decorate with crayons. Repeat the process for each child in your class.

After children have completed their covers, type in the following sentences in caps. Be sure to leave enough space between sentences so that the children can cut or tear them out separately.

CHRISTOPHER COLUMBUS DISCOVERED AMERICA.
AMERICA LOOKS LIKE THIS TODAY.
WE DISCOVERED SPACE.
SOMEDAY SPACE MAY LOOK LIKE THIS.

Print out this page, photocopy it for all the children in your class, and distribute one copy to each child along with one blank piece of white paper. Tell students to cut or tear off the first sentence, and show them how to paste the sentence on the bottom of the plain white paper. Tell them to draw a picture of what America looked like when Columbus arrived here. Remind them that Indians were here at the time, and that there were no houses or cars.

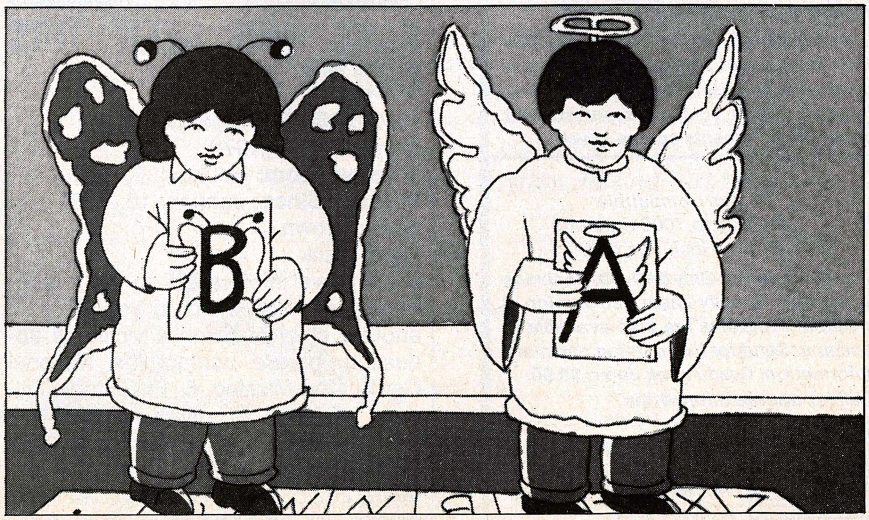
Next, hand out a second piece of blank paper. Tell students to tear off the second sentence and paste it on the bottom of the page as they did with the first. Tell them to draw a picture of what their town in America looks like today. Ask them how this picture is different from the first.

Continue with the last two pages. On the page with the third sentence, students are to draw a picture of what space looks like now. Explain that the people who explore space and its planets are like Columbus; they are travelling to new places where few people like them have ever been. Remind students how much America has changed since Columbus' arrival almost 500 years ago, in 1492. How might space change in the future? On the page with the last sentence, ask students to draw a picture of of what space might look like 500 years from now.

When the pages are finished, staple them together. Ask each child to present his book of ideas to the class, and practice recognizing each sentence. When the children know the sentences, they are ready to take the books home and share them with their parents.

HALLOWEEN PARTY: COMPUTER LETTERS IN COSTUME

After they have completed the above activity, ask children if they discovered anything tricky about the keyboard when they looked for the letters in their names. The keys are not in alphabetical order! Tell the children that the computer keyboard played a trick on the computer and put all its letters out of alphabetical order. But the computer turned the "trick" into a "treat" with a fun costume party that will help them find



Learning the computer keyboard can be a Halloween treat.

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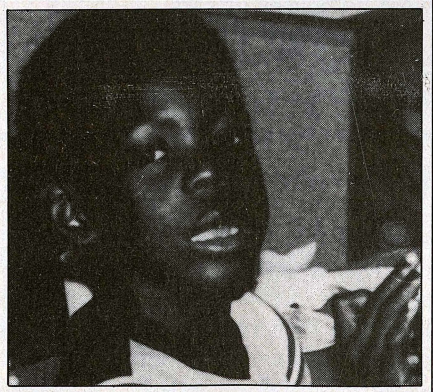


HAVE YOU SEEN THIS CHILD?

Michael Mayfield
Born: June 6, 1978
Missing From: Houston, TX
Missing Since: January 10, 1985
Eyes: Brown
Hair: Black

If you have information on the whereabouts of Michael, or if you suspect another child of being a victim of abduction, please contact the National Center for Missing & Exploited Children, 1835 K St., N.W., Suite 700, Washington, D.C., 20006; 800/843-5678 (hotline), 800/826-7653 (for the deaf), 202/634-9836 (in D.C.). All information will be handled in strict confidence.

FIRST STEPS

(continued from page 63)

the letters on the keyboard.

Materials needed: Masking tape to make a keyboard grid on the floor (or the *Computergarten* (Scholastic) Keyboard-on-the-Floor, if you have it); 26 sheets of white paper (for drawings of letters); felt tip markers or crayons; and the classroom computer set up where children can see it (with a word processing program booted up).

Activity: If you have a *Computergarten* Keyboard-on-the-Floor, place it on the floor of your classroom and tape it down. If not, make a keyboard grid using tape.

Using this enlarged keyboard, go through the letters alphabetically, showing each letter's position on the keyboard. Repeat several times, having children call out the letters in alphabetical order while you point out the locations on the keyboard. Then draw each letter in costume following these general directions:

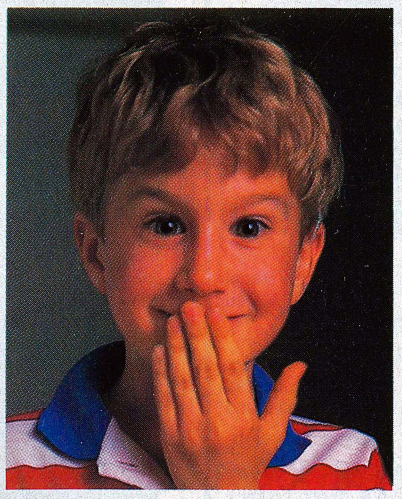
Make the letter *A* on a piece of white paper so that all of the children can see it. Tell the children that *A* dresses as an angel for Halloween. Add wings and a halo to the letter *A* (see illustration) and show it to the children. Type an *A* on the classroom computer to show it on the monitor.

Make the letter *B* on a piece of white paper. Tell the children that *B* dresses in a butterfly costume for Halloween (see illustration). Draw a butterfly adding wings and antennae to the *B*. Type a *B* on the computer.

Continue making up drawings for the rest of the letters, asking children for their input. When you have finished the alphabet, have the children take turns placing the drawings of the letters in costume in their proper places on the enlarged keyboard grid. After they have placed a drawing of a letter on the floor, have them push the proper key on the computer keyboard. Have the whole class say the name of the letter as it appears on the computer monitor. ■

Trisha Ainsa is director of the Computer Literacy in Children, Title VII Program, Region XIX Education Service Center, El Paso, TX, and an associate professor at the University of Texas at El Paso.

"My computer just talked to me!"



Announcing a breakthrough program for helping students learn to read and write: Scholastic's new *Talking Text Writer!*

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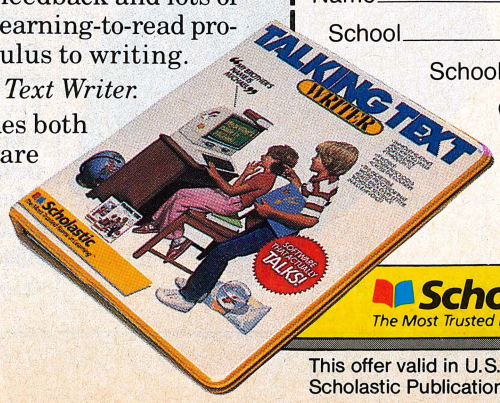

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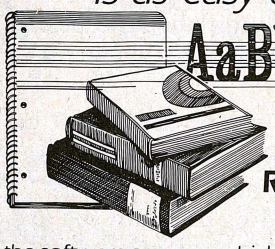

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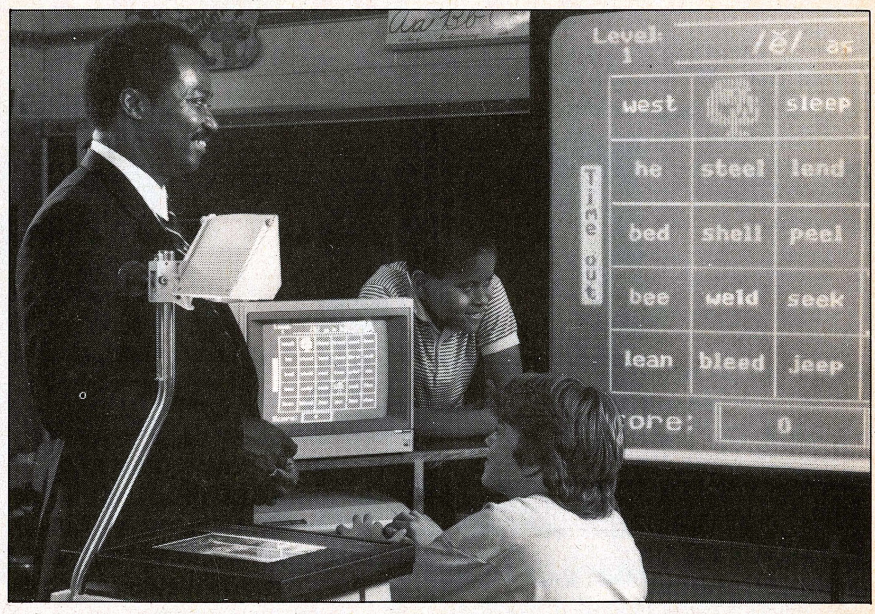

PROJECT COMPUTER IMAGES ONTO A WALL OR SCREEN

The Minnesota Education Computing Corporation (MECC) is now distributing MagnaByte (manufactured by Telex Communications), a product that uses the latest imaging technology for projecting computer images onto a wall or screen.

MagnaByte, which works on both Apple and IBM computers, uses a transparent LCD display palette that sits on top of a standard overhead projector to display computer images and text up to 80 columns wide. The unit hooks up to the computer using a special card which fits into one of the computer's slots. MagnaByte is portable; the unit weighs six pounds and measures 12" x 15". Built-in fans dissipate the heat generated by the overhead projector, allowing MagnaByte to be used over long periods of time. The system comes with an interface card and remote control, and features non-skid pads to keep it in place.

Price: *$1,292. Discounts available to MECC members.* Contact: *MECC, 3490 Lexington Ave. North, Saint Paul, MN 55126-8097; 800/228-3504, 800/782-0032 (in MN).*
(Circle 114 on Product Info. Card)

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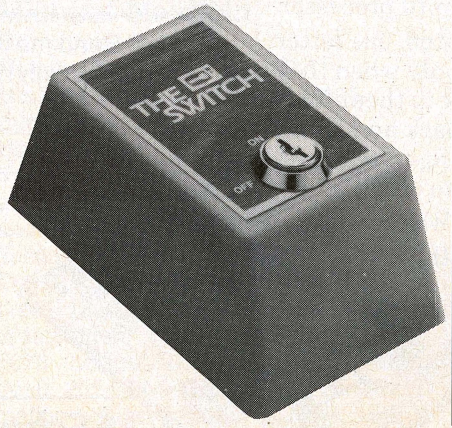


Price: *$19.95. Volume discounts are available.* Contact: *Positive Impact Marketing, 120 Richardson St., Grass Valley, CA 959458; 800/247-5548, 916/272-7191 (in CA).*
(Circle 110 on Product Info. Card)

SOFTWARE SHOWCASE

SOFTWARE RECOMMENDED FOR TEACHERS, BY TEACHERS

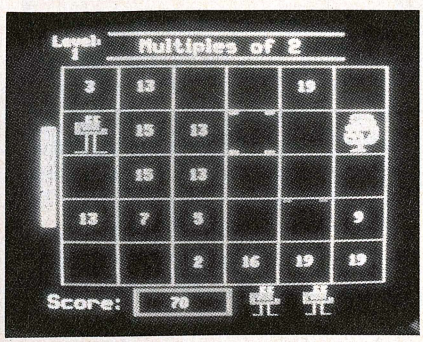
NUMBER MUNCHERS

Computer: Apple II family
Topic: Math
Grade Level: 3 and up

Number Munchers is a math practice game in which students must direct their "Muncher" (a hungry little creature) to "eat" the correct answers to five different kinds of math problems. Using a joystick or the keyboard, students guide their Muncher through a screen grid looking for numbers that are factors, multiples, primes, equalities, or inequalities of a value given at the top of the screen. While choosing numbers to munch, students have to keep a sharp eye out for the persistent "Troggles," which, a lá Pac Man, feast on any Number Muncher within reach. Students are awarded extra Munchers upon reaching scores of 1,000 or 10,000, and high scorers are eligible for the Hall of Fame that accompanies each of the five games.

To use the program, students need only to have been introduced to the particular math concept (factors, multiples, primes, and so on) for each game. The software offers excellent on-screen directions; these are followed by the message, "Now watch the computer play," and an on-the-spot demonstration. The ease of access makes this program especially useful. By seventh grade, students are expected to know primes, multiples, and factors, even though these are often covered only briefly in regular class work. *Number Munchers* will be a big help in reinforcing concepts and vocabulary —the amount and quality of practice kids will get with this program would be hard to duplicate off-screen. In addition, many teacher options are available for customizing the range of numbers the games focus on; restricting student use of the games (allowing them to only play multiples, for instance); and editing or erasing Hall of Fame entries.

The instructional design is simple and engaging, with immediate feedback for right and wrong answers. The designers took many elements of successful video games into account while designing this program — the Hall of Fame is particularly popular with kids. The Number Munchers respond quickly to the arrow keys, joystick, and space bar. Although there is the option of running the program silently, students may find sound essential: that's what alerts them that Troggles are approaching!



In Number Munchers, *kids direct their Munchers to "eat" the correct answers.*

The value of *Number Munchers* lies in all the work with numbers it allows. The documentation that accompanies the program is adequate, although the student handouts (an award certificate and note to parents) are not particularly useful; I would have much preferred blackline masters to accompany each game.

Price: $49; $55 for 3.5" diskette for IIGS
Policy: Backup included; 30-day preview
Source: MECC, 3490 Lexington Ave. North, Saint Paul, MN 55126-8097; 800/228-3504

Craig Dickinson
Adjunct Instructor
Univ. of Maine, Lesley College

(Circle 105 on Product Info Card)

THE U.S. CONSTITUTION THEN AND NOW

Computer: Apple IIe, IIc (128K), Apple IIGS
Additional Requirements: *AppleWorks* software
Topic: Social studies
Grade Level: 7–12

The U.S. Constitution Then and Now contains word processing and data base files (used in conjunction with *AppleWorks* software) to help students research historical and contemporary issues involving the Con-

(continued)

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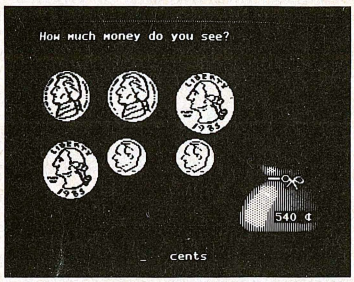

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stitution and the Bill of Rights.

The activities are clustered into two separate units, one on the Constitutional Convention and the other on the Bill of Rights. For the Constitutional Convention unit, students "role play" one of the delegates at the convention. The two disks that accompany this part of the program not only supply data on each representative; but describe each of the governmental models to be discussed (such as the Virginia Plan or the New Jersey Plan), and give a detailed agenda for students to follow. The Bill of Rights unit introduces students to their rights through an analysis of contemporary cases involving the rights of students. The data disk contains case studies, background information on legal proceedings, and bibliographic information. The units can be used together or independently.

The lessons are well-presented, the historical biographies are interesting, and a great effort has been made to include topical issues regarding sexual and racial equality. The program's design is such that the student is assisted in his or her analytical thinking, and is encouraged toward an independent interpretation of each issue. Access to computer files such as the ones supplied greatly eases the tedious research involved in studying such complex topics, and allows the student more freedom for analysis of the important data.

I found the data to be easily accessible, accurate, and remarkably thorough. Help options are frequently included, with hints about the operation of *AppleWorks* and about how to best utilize the data the student is seeking. I also discovered that maintaining multiple files on the desktop really cuts down on the time involved in switching between applications, and increased the interactive aspects of the program.

This program makes many demands on students in terms of word processing, data handling, disk management, printing, and so on. Prior knowledge of *AppleWorks* would be extremely helpful to the student; it might even be worthwhile to give some preliminary lessons in this area.

The organization of the manual is excellent. Both technical information and lesson plans are provided for each unit; these are followed by the *AppleWorks* Instruction Modules (AIMS), which lead the user through the *AppleWorks* commands needed to access the information on each disk. In addition, the manual presents many valuable enrichment and follow-up ideas.

This is the most thorough program I have seen on the Constitution — it is definitely worthwhile. Nowhere else at this time is the range and amount of information so readily available to students.

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Source: Scholastic Inc., 730 Broadway, New York, NY 10003; 800/325-6149

Kristen Sternberg
Teacher, The Dalton School
New York, NY
(Circle 106 on Product Info Card)

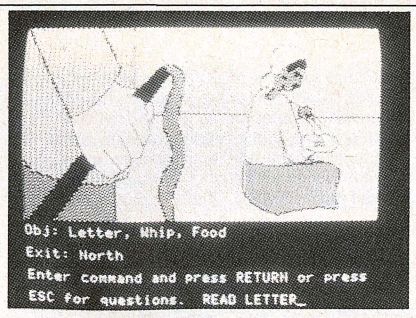
CIVIL WAR

Computer: Apple II family, IBM PC/PCjr, Tandy 1000
Topic: Social studies, American history
Grade Level: 5–8

This is the fourth program in the American History Explorer series based on events included in most of the leading American history textbooks. The double sided disk presents six events for students to explore (with beginner and advanced levels), and has management capabilities that will handle 50 students' records. Students can even save their progress through an event at any time.

The facets of the Civil War covered in this program — from the Underground Railroad to the Surrender at Appomattox — are high points in this period of history. For each event, students are given six or seven scenes to explore. Each scene (a single screen picture) contains objects and people that students can examine and question, using commands such as LISTEN, ASK WHY and READ. The program then displays clues to the event or date.

After exploring all the scenes for a given event, students must identify the most important clues to the event and date, and give the correct date. On the advanced level, students are also asked three research questions, which they must match to the appropriate clues. Incorrect identification of the event or any key clue will return students to the scenes so they can reexamine the clues. (The requirement that students keep track of and identify specific clues could be a problem for kids who know their history well enough to name an event without going through many of the program's clues. Although summarizing the event is important, it stops the game for a student who already knows the answer.)



Students identify historical events by examining clues in each scene of Civil War.

This is a high interest program that is easy to use; students quickly learn to move through the screens to search and ask for clues, and most need about 20 minutes to complete each event. The graphics clearly depict the events, and a color monitor really helps them come alive.

The program succeeds from a teacher's viewpoint, too. The management capabilities are excellent, and the teacher's manual provides clearly stated discussion questions that are relevant for a variety of ability levels. Supplied activity sheets (including maps and time lines) are appropriate and easy for teachers to copy, and even add to.

If you have a large screen monitor, this program would be a great way to involve the whole class in an enhanced Civil War unit. Events could easily be chosen for the curricular area being studied, and you could make full use of the excellent discussion questions included in the manual.
Price: $39.95; lab pack of 5 disks $100
Policy: Backup included; 30-day preview
Source: Mindscape, 3444 Dundee Road, Northbrook, IL 60062; 800/221-9884, 800/942-7315 (in IL)

Ann Dana
Computer Consultant, Teacher
District 181, Hinsdale, IL
(Circle 103 on Product Info Card)

SIMON SAYS

Computer: Apple II family, Commodore 64
Topic: Problem solving/sequencing
Grade Level: K–6

Simon Says is a computer version of the classic memory game, in which players repeat an ever-lengthening sequence of items using a memory strategy known as sequencing or chaining.

(continued)

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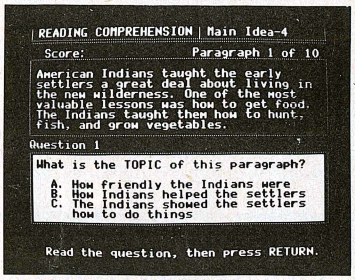

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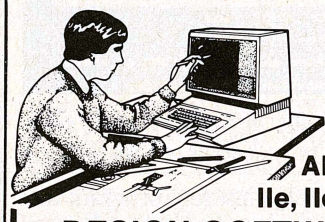

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SOFTWARE SHOWCASE

(continued from page 69)

The computerized *Simon Says* works with input from a keyboard, Muppet Learning Keys, or Touch Window (for the Apple). Up to four students can play at a time, in one of three modes: colors (if you have a color monitor), numerals, or letters. When the computer exhibits one "unit" (color, numeral, or letter), the player responds by inputting the unit with the arrow keys or other input device (for colors) or the keyboard (for letters and numbers). The computer adds a second unit, and the player must identify (input) the two unit string. The strings increase in length until the player "misses" — misidentifies the sequence. (For multiple players, the next student continues until he or she misses, too.)

Students of all ages seem to enjoy using this program, and find it easy to access. The color and numeral modes may be best for the youngest students, because the colors used are few and numbers are much more easily located on the keyboard than letters. But the program can be fine tuned to meet specific needs, through an options screen permitting the teacher to choose the units used, adjust time between presentations of units, and turn the sound on or off.

The documentation is good, and comes with suggestions for four off-computer warm-up activities that will introduce students to sequencing. Like the software, these games offer "tried and true" teaching strategies for motivating practice of this memory skill, which along with patterning, mnemonics, visualization, and other memory devices, should be part of any problem solving curriculum. In addition, *Simon Says* could be used as an introduction to computer learning in any context, because it is so user friendly.

Price: $59; lab pack of 10 disks $177
Policy: Backup included; 30-day preview
Source: Sunburst, 39 Washington Ave., Pleasantville, NY 10570-9971; 800/431-1934, 800/221-5921 (in NY)

Beth Lazerick
Computer Education Specialist
Baltimore, MD

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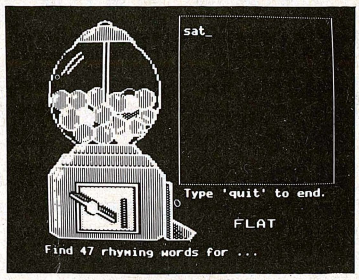

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Sources of Software Reviews

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Which software programs should you buy? Which are best ignored? Here are some up-to-date sources that tell you what the experts are saying.

TESS: THE EDUCATIONAL SOFTWARE SELECTOR

Now in its third edition, ***TESS*** is a standard reference in the field of educational technology. In 900 plus pages, there are more than 7,700 product descriptions.

With *TESS*'s multiple indexing system, software entries can be located by subject, grade level, program title, or computer compatibility. The program descriptions are much more complete than in most directories of this type. Each entry describes the program's content; its curriculum correlation; its testing, management, and networking features; what's needed to use it, who produces it, what it costs, how to get it, and more. Citation of review sources and their rating of the program (positive, negative, or mixed/neutral) are also included. A supplement to this edition of *TESS* is scheduled for release this fall. Price: *$59.95 includes postage.* Contact: *Educational Products Information Exchange (EPIE) Institute, P.O. Box 839, Water Mill, NY 11976.*

ONLY THE BEST: THE DISCRIMINATING SOFTWARE GUIDE FOR PRESCHOOL – GRADE 12 (1987-88 EDITION)

Out of approximately 11,000 educational software programs now on the market, less than 4 percent meet the standards set by ***Only the Best.*** In this most recent edition of the guide, 146 programs qualified for inclusion by receiving a positive rating from every one of the 30 evaluation services consulted by the editors.

For each program listed, *Only the Best* includes suggested grade levels; application tips; hardware requirements; conclusions of the evaluation services; publisher's name, address, and phone number; and details regarding lab packs, network use, and site licenses. Magazine review citations are given, as is an annotated list of 47 programs that "fall just short" of making the list, and an unannotated guide to the 168 programs which made last year's edition of *Only the Best.* Price: *$21.95 prepaid; $23.95 if billed.* Contact: *Education News Service, P.O. Box 1789, Carmichael, CA 95609.*

1987 SURVEY OF EARLY CHILDHOOD SOFTWARE

In his ***1987 Survey of Early Childhood Software***, Warren Buckleitner has put together descriptions of 229 educational programs for children ages 3 to 6, available for Apple, Commodore 64, IBM, or Atari computers.

The *Survey*'s complex evaluation system rates each piece of software from 1 to 100 in nine categories under three main headings: user friendliness, content, and instructional design. In addition to these scores, each entry includes a short description of the program and a coded list of the early childhood skills it addresses. The book's appendices include a directory of software publishers; a ranked listing of the software by content area; categorization of the programs by computer brand; and a glossary. Price: *$20 (book or* AppleWorks *disk version) includes complimentary issue of* Keynotes, *a newsletter for preschool and kindergarten teachers.* Contact: *High/Scope Press, 600 N. River St., Ypsilanti, MI 48198.*

THE BOOK OF APPLE SOFTWARE

Thorough reviews of nearly 1,000 popular programs for Apple computers can be found in ***The Book of Apple Software***, edited by Jeffrey Stanton, Mia McCroskey, and Michael Mellin. (Editions also exist for Macintosh, IBM, and Commodore.)

More than 200 of the book's 673 pages are devoted to programs for education. Icons indicate whether any peripherals are required to run a program, and a report card system (A through F) is used to rate each program in six areas: overall performance, ease of use, quality of documentation, reliability, error handling, and value for money. This is one of the few books of its kind to include negative reviews. Price: *$24.95.* Contact: *Arrays, Inc./The Book Division, 6711 Valjean Ave., Van Nuys, CA 91406.*

ALSO NOTEWORTHY...

AppleAccess: Curriculum Software Guide (currently available for science, K–12; and reading, writing and language arts, 6–12.) Price: *$20 each.* Contact: *Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014.*

Software Reports: The Guide to Evaluated Educational Software. Published biannually. Price: *$39.50 each.* Contact: *Trade Service Publications, Inc., 10996 Torreyana Rd., San Diego, CA 92121.*

Software Reviews on File. Price: *$165 for 12 issues, a binder, and cumulative index.* Contact: *Facts On File Publications, 460 Park Avenue South, New York, NY 10016.*

Wighton's Winners: Reviews of Exemplary Microcomputer-Based Educational Software Products by David J. Wighton. Price: *$17.50.* Contact: *Wighton C.A.I. Services Ltd., P.O. Box 3202, Sherwood Park, Alberta, CANADA T8A 2A6.*

AND FOR SPECIAL EDUCATORS:

Microcomputers in the Classroom: A Compendium of Courseware Reviews, edited by Gerald M. Senf. Price: *$12.* Contact: *PRO-ED, 5341 Industrial Oaks Blvd., Austin, TX 78735.*

The SpecialWare Directory. Price: *$22.50.* Contact: *Oryx Press, 2214 North Central at Encanto, Phoenix, AZ 85004.* ■

Candy Colborn is a media specialist at Cottonwood Creek Elementary School in Englewood, CO.

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